

# Service Manual

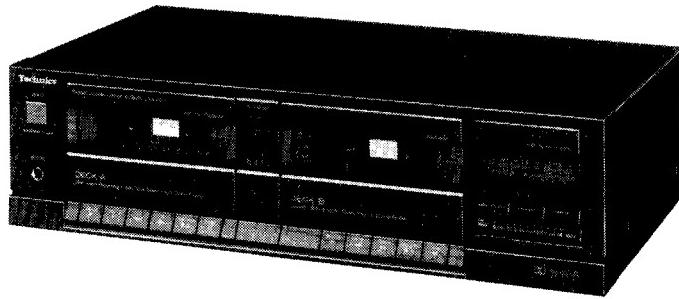
Cassette Deck

Dolby NR-Equipped  
Stereo Double Cassette Deck

**RS-T130**

## Color

(S)...Silver Type  
(K)...Black Type



## Area

Color	Area
(S) (K)	(E) .....Continental Europe.
(S) (K)	(EK).....United Kingdom.
(S) (K)	(EG).....F.R. Germany.
(S) (K)	(EH).....Holland.
(S) (K)	(XA).....Asia, Latin America, Middle Near East, Africa and Oceania.
(S) (K)	(XL) .....Australia.

**SPECIFICATIONS**

<b>Deck system</b>	Stereo cassette deck
<b>Track system</b>	4-track, 2-channel
<b>Heads</b>	
(DECK A) REC/PLAY	Solid Permalloy head
Erasing	Double-gap ferrite head
(DECK B) PLAY	Solid Permalloy head
<b>Motors</b>	
(DECK A) Capstan/reel table drive	2 speed electronically controlled DC motor
(DECK B) Capstan/reel table drive	2 speed electronically controlled DC motor
<b>Recording system</b>	AC bias
Bias frequency	80 kHz
<b>Erasing system</b>	AC erase
<b>Tape speed</b>	4.8 cm/sec. (1-7/8 ips)
<b>Frequency response (w/o Dolby N.R.)</b>	
METAL	20 Hz~16 kHz
CrO <sub>2</sub>	30 Hz~15 kHz (DIN)
NORMAL	20 Hz~15 kHz
	30 Hz~15 kHz (DIN)
<b>S/N</b>	(signal level = max recording level, CrO <sub>2</sub> type tape)
Dolby B NR on	66 dB (CCIR)
NR off	56 dB (A weighted)

**Wow and flutter (Except XL)** 0.08% (WRMS)

±0.2% (DIN)

0.1% (WRMS)

**Wow and flutter (XL)**

Approx. 105 seconds with C-60 cassette tape

**Input sensitivity and impedance**

LINE 60 mV/47 kΩ

**Output voltage and impedance**

LINE 400 mV/3.2 kΩ

HEADPHONES 30 mV/8 Ω

**■ GENERAL****Power consumption** 18W**Power supply**

For Australia and United Kingdom AC 50Hz/60Hz, 240V

For continental Europe AC 50 Hz/60 Hz, 220V

For others AC 50 Hz/60 Hz, 110V/127V/220V/240V

**Dimensions (W×H×D)** 430 × 120 × 228 mm**Weight** 3.8 kg**Note:**

Specifications are subject to change without notice.

Weight and dimensions are approximate.

\* Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.

"Dolby" and the double-D symbol are trade marks of Dolby Laboratories Licensing Corporation.

**Technics****Matsushita Electric Industrial Co., Ltd.**

Central P.O. Box 288, Osaka 530-91, Japan

## ■ CONTENTS

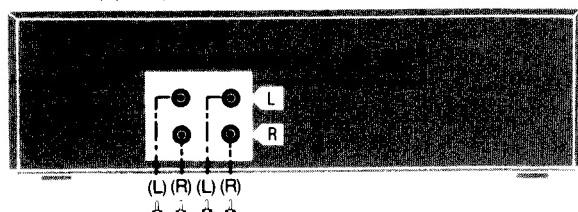
	Page
• How To Connection .....	2
• Accessories .....	2
• Location of Controls .....	3
• Disassembly Instructions .....	4
• Measurement and Adjustment Methods.....	5~7
• Microcomputer Terminal Function.....	8, 9
• Wiring Connection Diagram .....	10
• Block Diagram.....	11, 12
• Printed Circuit Boards.....	13~16
• Schematic Diagram.....	17~20
• Resistors & Capacitors .....	21, 22
• Replacement Parts List .....	23
• Terminal Guide of IC's, Transistors and Diodes.....	24
• Mechanical Parts Location .....	25, 26
• Replacement Parts List .....	27, 28
• Cabinet Parts Location.....	29, 30

## ■ HOW TO CONNECTION

### Placement Hints

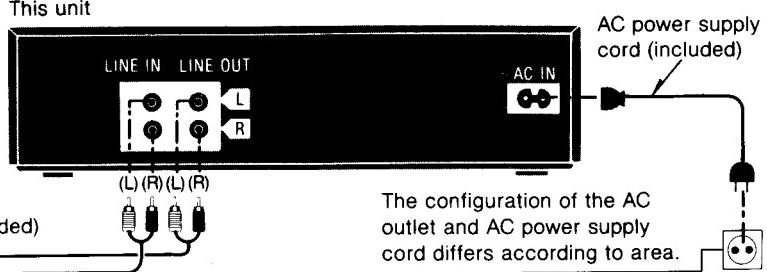
If this unit is placed near a stereo receiver, a "hum" noise may be heard during tape playback, recording, or AM reception of the receiver.  
If this occurs, leave as much space as possible between the units, or place them where there is the least amount of "hum".

Receiver (option)



Stereo connection cables (included)

This unit



The configuration of the AC outlet and AC power supply cord differs according to area.

Household AC outlet

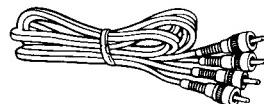
### For United Kingdom only:

Household AC outlet

Fit a suitable plug to the AC power supply cord.

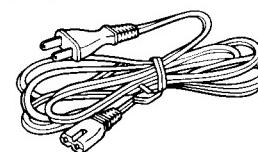
## ■ ACCESSORIES

- Stereo connection cables ..... 2  
SJP2201

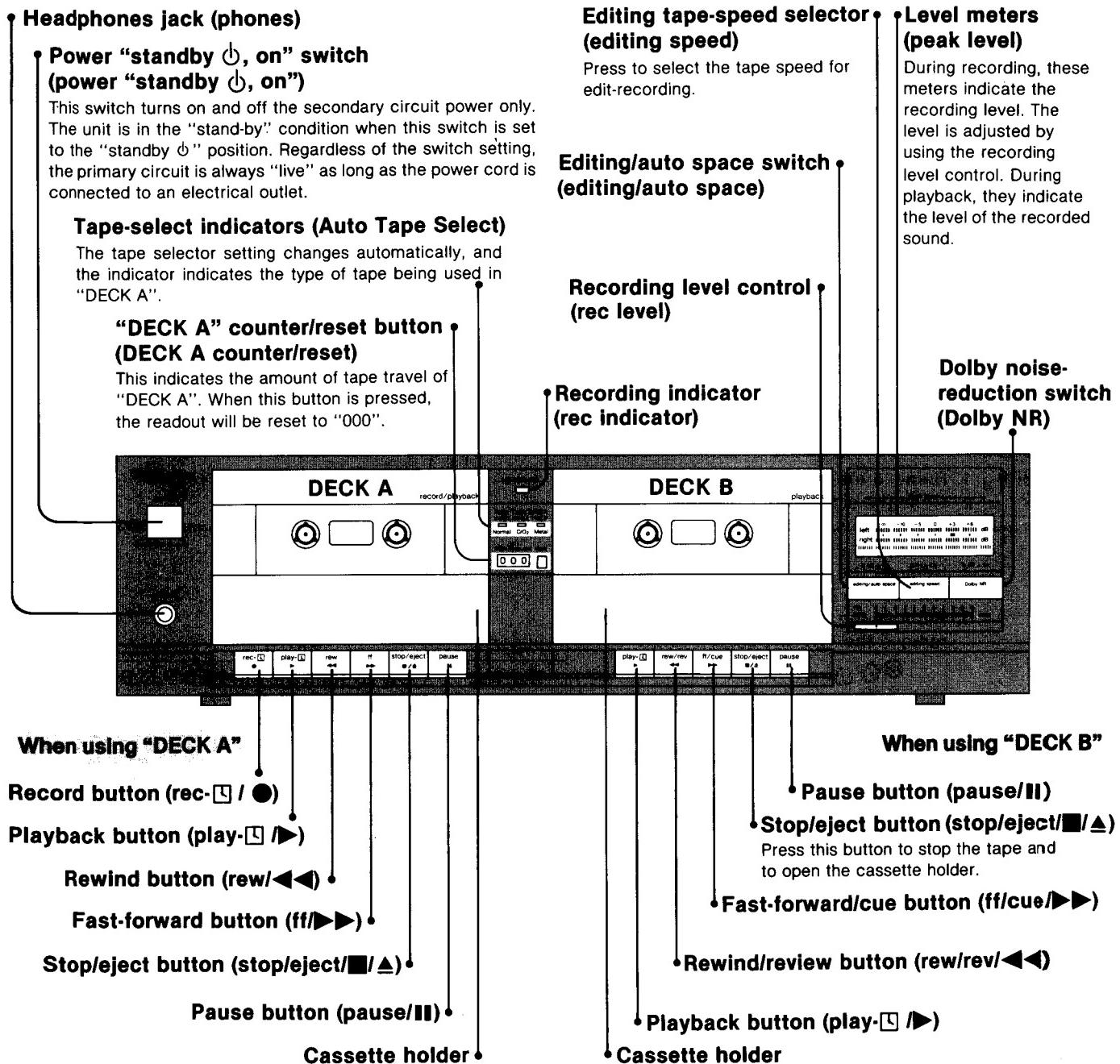


- AC power supply cord ..... 1

SFDAC05E03.... (E, EG, EH)  
SFDAC05G02 ... (EK)  
SJA163 ..... (XL)  
SJA185 ..... (XA)



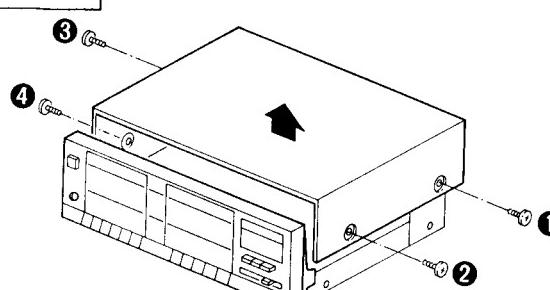
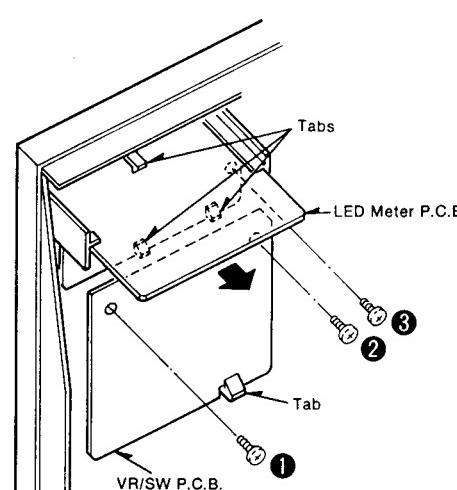
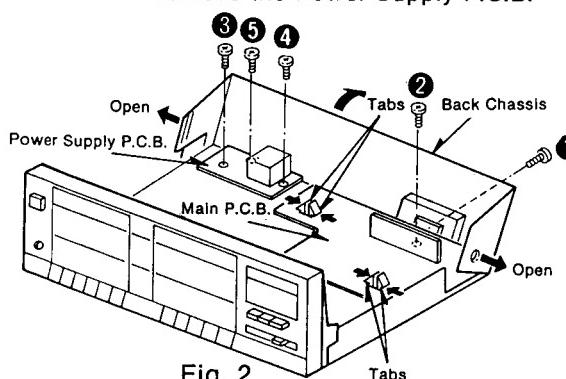
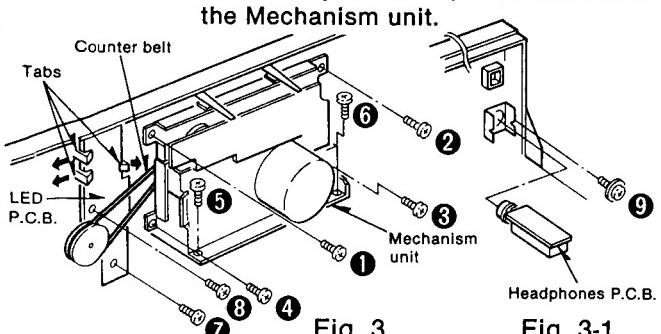
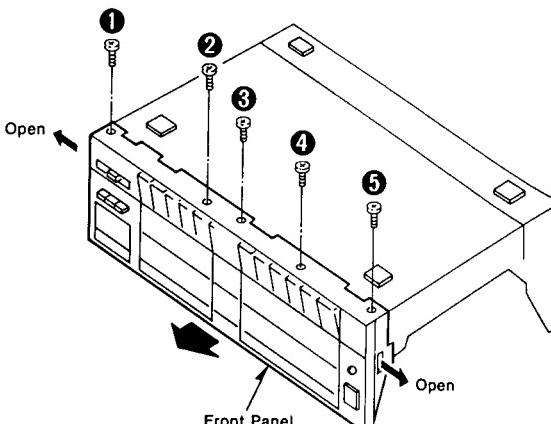
## ■ LOCATION OF CONTROLS



## ■ DISASSEMBLY INSTRUCTIONS

### "ATTENTION SERVICER"

Some chassis components may have sharp edges. Be careful when disassembling and servicing.

Ref. No. 1	<b>How to remove the cabinet</b>	Ref. No. 4	<b>How to remove the LED meter P.C.B. and VR/SW P.C.B.</b>
Procedure 1	<ul style="list-style-type: none"> <li>Remove the 4 screws (①~④).</li> </ul> 	Procedure 1 → 2 → 4	<ol style="list-style-type: none"> <li>Remove the 2 screws (①, ②).</li> <li>Push the one tab aside, and then remove the VR/SW P.C.B.</li> <li>Remove the one screw (③).</li> <li>Push the 3 tabs aside, and then remove the LED meter P.C.B.</li> </ol> 
Ref. No. 2	<b>How to remove the Main P.C.B. and Power Supply P.C.B.</b>	Ref. No. 5	<b>How to remove the LED P.C.B. and Headphones P.C.B.</b>
Procedure 1 → 2	<ol style="list-style-type: none"> <li>Remove the one screws (①).</li> <li>Open the side of back chassis, and then pull down it.</li> <li>Remove the one screw (②).</li> <li>Remove the 4 tabs aside, and then remove the Main P.C.B.</li> <li>Remove the 3 screws (③~⑤), and then remove the Power Supply P.C.B.</li> </ol> 	Procedure 1 → 2 → 3 → 5	<ol style="list-style-type: none"> <li>Remove the 2 screws (⑦, ⑧). (Fig. 3)</li> <li>Remove the 3 tabs aside. (Fig. 3)</li> <li>Remove the one screw (⑨), and then remove the Headphones P.C.B. (Fig. 3-1).</li> </ol>
Ref. No. 3	<b>How to remove the Mechanism unit (DECK A/B)</b>	Ref. No. 6	<b>How to remove the Front panel</b>
Procedure 1 → 2 → 3	<ol style="list-style-type: none"> <li>Remove the 6 screws (①~⑥).</li> <li>Remove the counter belt (for mechanism unit of DECK A).</li> <li>Push the eject button, and then remove the Mechanism unit.</li> </ol> 	Procedure 1 → 3 → 4 → 5 → 6	<ol style="list-style-type: none"> <li>Remove the 5 screws (①~⑤).</li> <li>Open the sides of Front panel, and then pull it to yourself.</li> </ol> 
Fig. 1	Fig. 2	Fig. 3	Fig. 3-1
Fig. 4			Fig. 5

## ■ MEASUREMENT AND ADJUSTMENT METHODS

### Measurement Condition

- Recording level control; Maximum
- Edit-recording/auto space switch; Off
- NR switch; Off
- Editing tape speed selector; X1

- Make sure heads are clean
- Make sure capstan and pressure roller are clean
- Judgeable room temperature  $20 \pm 5^\circ\text{C}$  ( $68 \pm 9^\circ\text{F}$ )

### Measuring instrument

- EVM(Electronic Voltmeter)
- Oscilloscope
- Digital frequency counter
- AF oscillator

- ATT(Attenuator)
- DC voltmeter
- Resistor ( $600\Omega$ )

### Test tape

- Head azimuth adjustment (8kHz, -20dB); QZZCFM
- Tape speed adjustment (3kHz, -10dB); QZZCWAT
- Playback frequency response (315Hz, 12.5kHz, 10kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz, 63Hz, -20dB); QZZCFM

- Playback gain adjustment (315Hz, 0dB); QZZCFM
- Overall frequency response, Overall gain adjustment  
Normal reference blank tape; QZZCRA  
CrO<sub>2</sub> reference blank tape; QZZCRX  
Metal reference blank tape; QZZCRZ

### HEAD AZIMUTH ADJUSTMENT (DECK A, B)

1. Playback the azimuth adjusted part(8kHz, -20dB) of the test tape(QZZCFM) and regulate the angle adjusting screw so that the outputs of L-CH and R-CH are maximized.  
(When the adjusting positions are different with L-CH and R-CH, find a position where the outputs of L-CH and R-CH are balanced, and then make the adjustment.)
2. At the same time, obtain a lissajous waveform and eliminate phase deflection.
3. After adjustment, lock the tape guide height and angle adjustment screws.

Playback Head: DECK B  
Record/Playback Head: DECK A

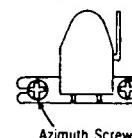


Fig. 1

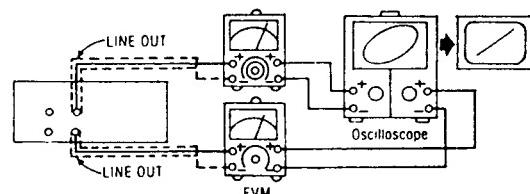


Fig. 2

### TAPE SPEED ADJUSTMENT (DECK A, B)

#### Normal speed

1. Set the editing tape speed selector to "X1".
2. Playback the middle part of the test tape (QZZCWAT).
3. Adjust Deck A=VR802 and Deck B=VR801 so that the output is within the standard.

#### High speed

4. Set the editing tape speed selector to "X2" and connect the Deck A=TP1 and TPN1, Deck B=TP2 and TPN2.
5. Playback the middle part of the test tape (QZZCWAT).
6. Adjust Deck A=VR803 so that the output is within the standard.
7. Open the Deck A=TP1 and TPN1, Deck B=TP2 and TPN2.

**Standard value:  $3000 \pm 45\text{ Hz}$  (Normal),  $6000 \pm 600\text{ Hz}$  (High)**

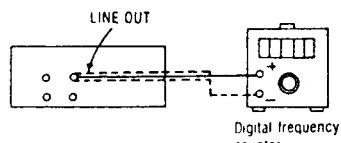


Fig. 3

### PLAYBACK FREQUENCY RESPONSE (DECK A, B)

1. Playback the playback frequency response part (315Hz, 12.5kHz~ 63Hz, -20dB) of the test tape (QZZCFM).
2. Check that the frequency is within the range shown in Fig. 5 for both L-CH and R-CH.

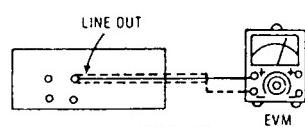


Fig. 4

Playback frequency response chart

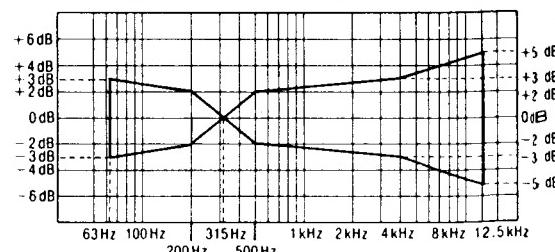


Fig. 5

**PLAYBACK GAIN ADJUSTMENT (DECK A, B)**

1. Playback the playback gain adjusted part (315Hz, 0dB) of the test tape (QZZCFM).
2. Adjust Deck B=VR1 (L-CH) [[VR2 (R-CH)]] and Deck A=VR3 (L-CH) [[VR4 (R-CH)]] so that the output is within the standard.

**Standard value:  $0.4V \pm 0.5dB$**

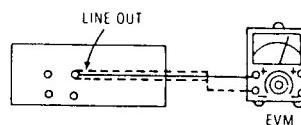


Fig. 6

**OVERALL FREQUENCY RESPONSE**

1. Insert the Normal blank test tape (QZZCRA) and set the unit to the Record Pause mode.
2. Apply a reference input signal (1kHz, -20dB) through an attenuator.
3. Attenuate the signal by 20dB and adjust the frequency from 50Hz~10kHz.
4. Record the frequency sweep.
5. Playback the recorded signal and assure that it is within the range shown in Fig. 8 in comparison to the reference frequency (1kHz).
6. If it is not within the standard range, adjust VR301 (L-CH) and VR302 (R-CH) so that the frequency level is within the standard range.
7. Repeat steps 2~6 above using the CrO<sub>2</sub> tape (QZZCRX) and the Metal tape (QZZCRZ) increasing the frequency range to 12.5kHz (50Hz~12.5kHz).
8. Assure that the level is within the range shown in Fig. 9.

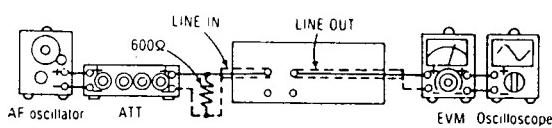


Fig. 7

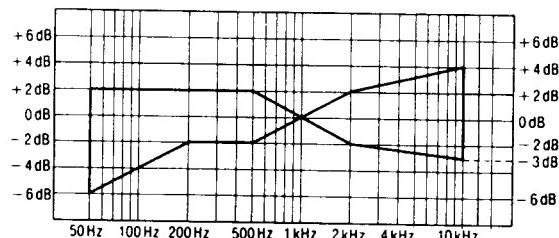
**Normal Overall frequency response chart (NR OUT)**

Fig. 8

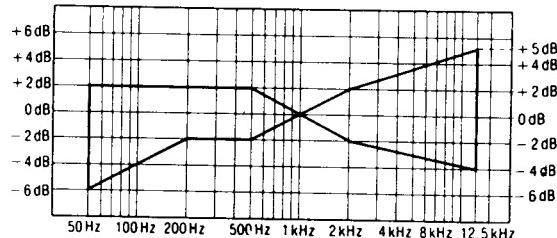
**CrO<sub>2</sub>-Metal Overall frequency response chart (NR OUT)**

Fig. 9

**OVERALL GAIN ADJUSTMENT**

1. Insert the Normal blank test tape (QZZCRA) and set the unit to the Record pause mode.
2. Apply a reference input signal (1kHz, -20dB). Attenuate the output so that its level becomes 0.4V.
3. Record this input signal.
4. Playback the signal recorded in step 3 above, and assure that the output is within the standard value.
5. If it is not within the standard value, adjust VR5 (L-CH) and VR6 (R-CH).
6. Repeat the step 2~5 above until the output is within the standard value.

**Standard value:  $0V \pm 0.5dB$**

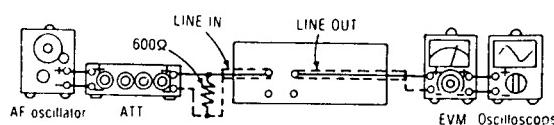
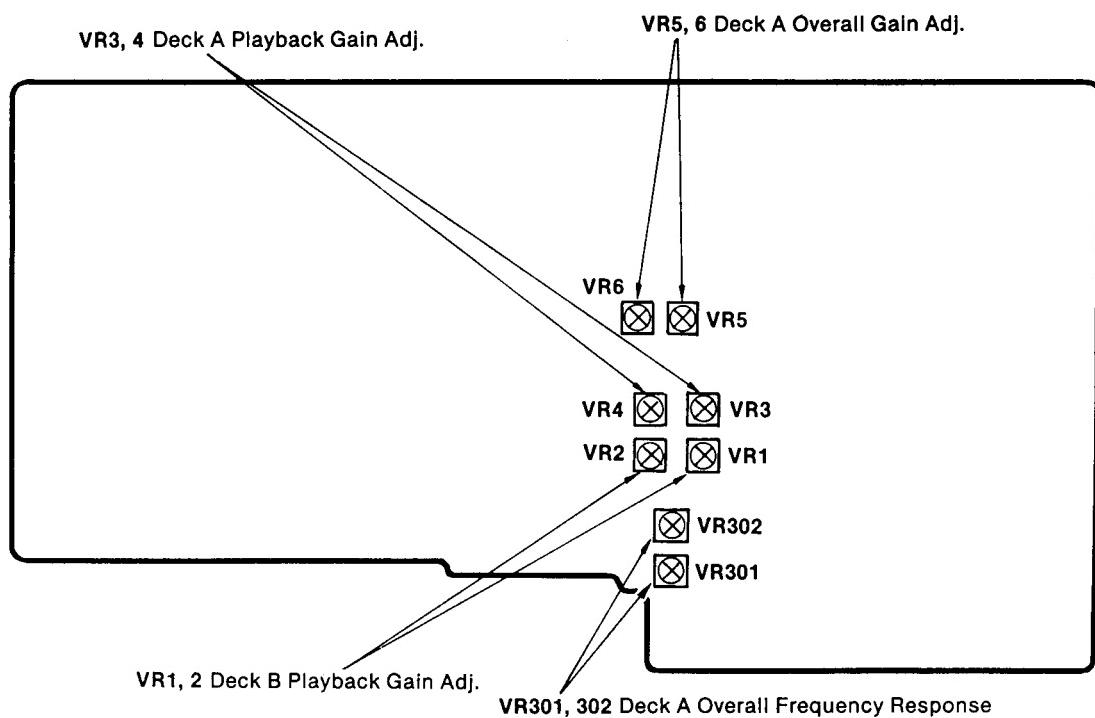


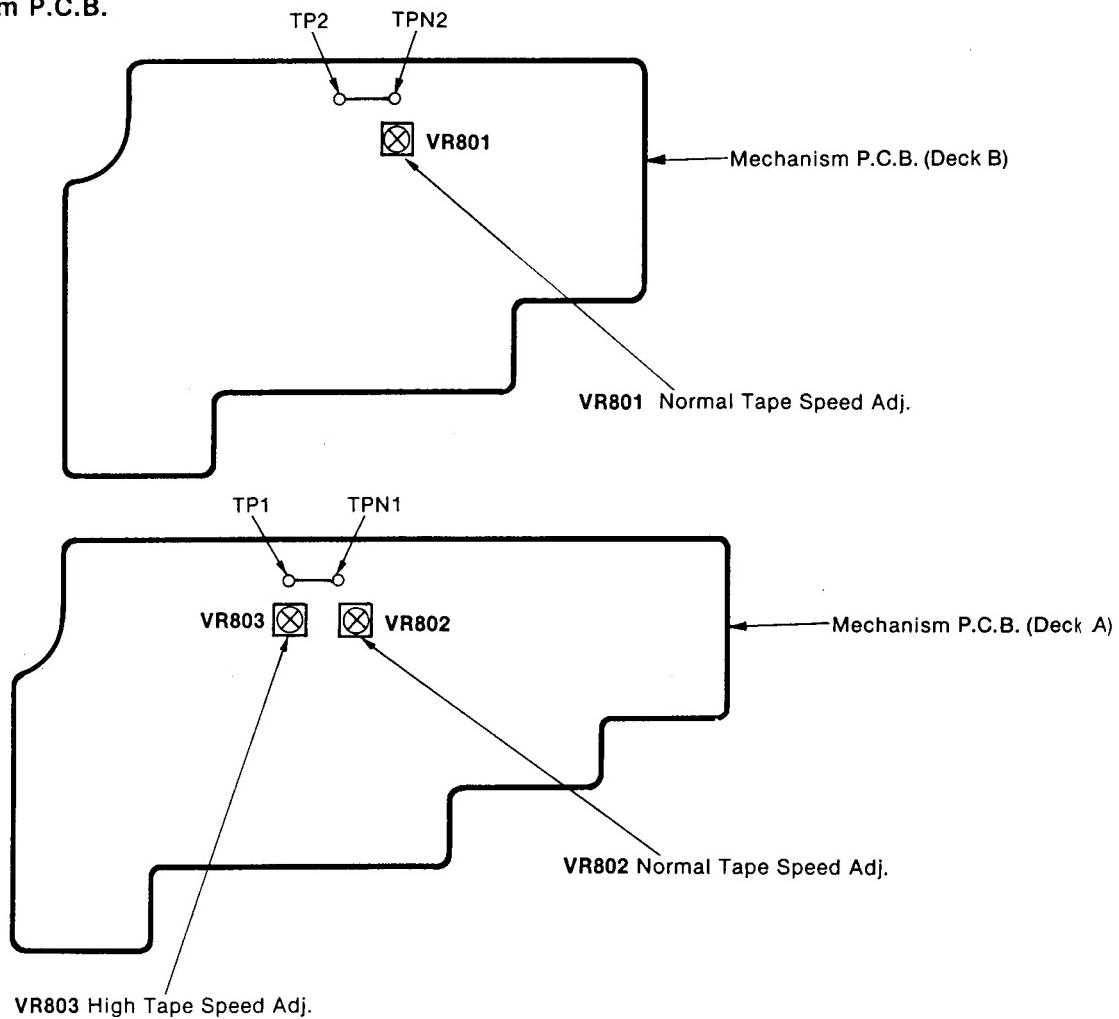
Fig. 10

## • Adjustment Points

### • Main P.C.B.



### • Mechanism P.C.B.



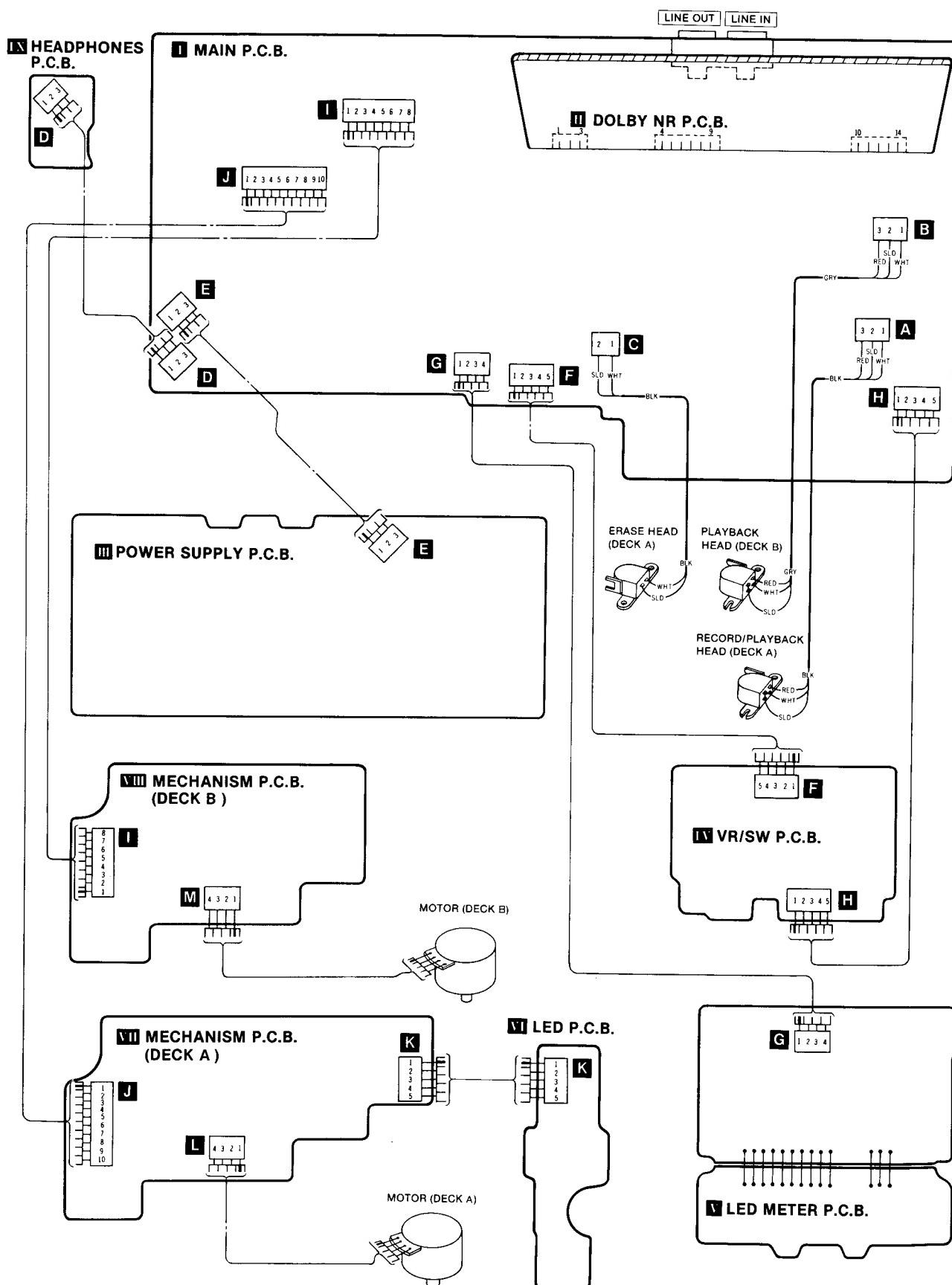
## ■ MICROCOMPUTER TERMINAL FUNCTION

**(IC801: MN1402STO)**

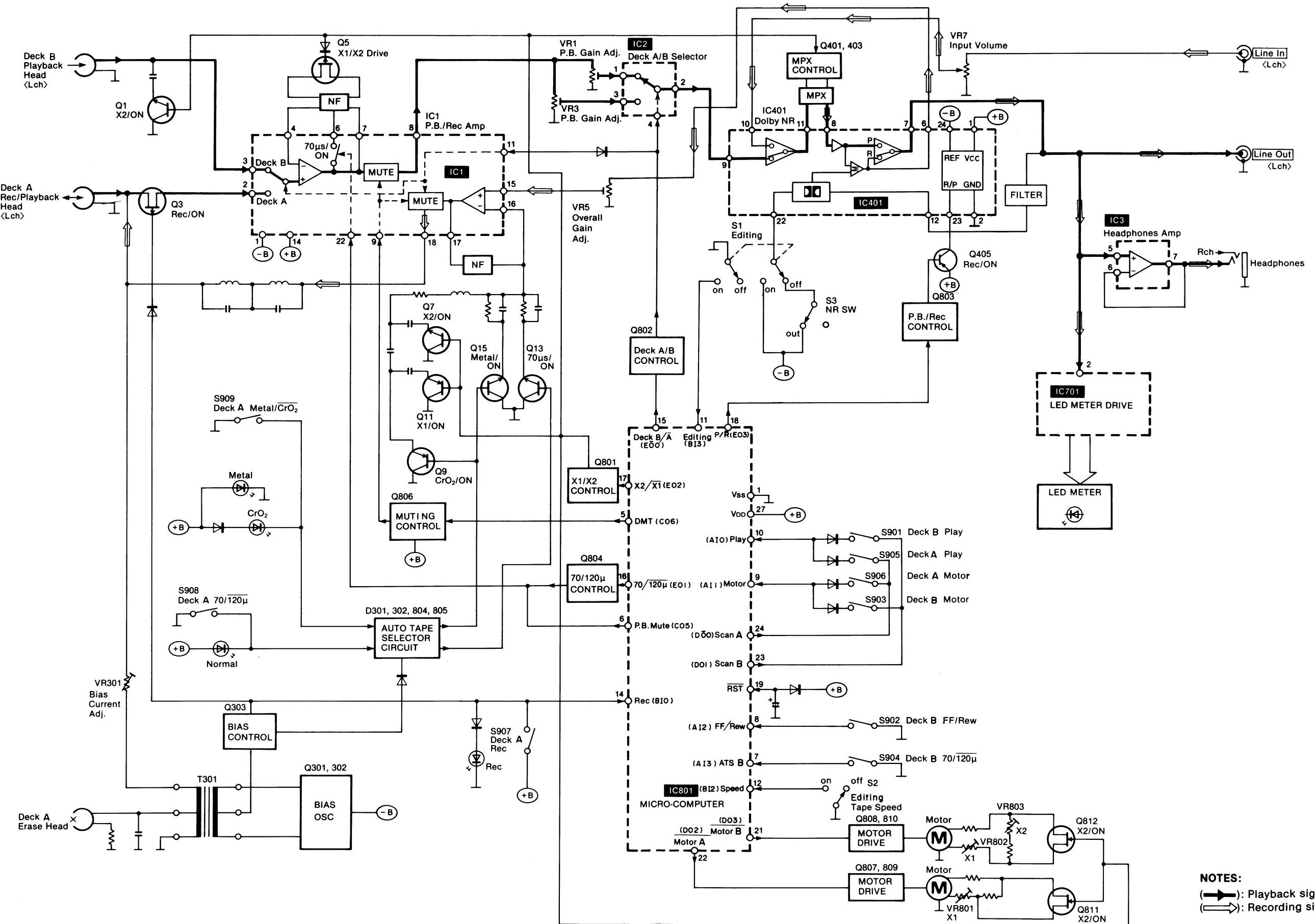
Terminal No.	Symbol	In/Out	Name	Function/operation
1	V <sub>ss</sub>	—	—	• Connection to GND.
2	CO9	—	—	• Non connection.
3	CO8	—	—	• Not used in this unit.
4	CO7	—	—	• Not used in this unit.
5	CO6	Output	Direct muting (DMT) signal output	• "L" in mute on (STOP, FF/REW and each selector), "H" in mute off (REC, PLAY). • DMT Output timing of each selector.
6	CO5	Output	Muting off signal output of playback AMP	• Deck B "L" in CUE/REV, "H" in other.
7	AI3	Input	Reading of input switch state deck B auto tape selector (S904)	• "L" when auto tape selector is on mode. • "H" when auto tape selector is off mode.
8	AI2	Input	Reading of input switch state deck B FF/REW (S902)	• "L" when FF/REW switch is on mode. • "H" when FF/REW switch is off mode.
9	AI1	Input	Reading of input switch state deck A, deck B motors (S906, S903)	• DO0 output (Scan A) signal→"L" Deck A... "L" in motor switch on, "H" in motor switch off. • DO1 output (Scan B) signal→"L" Deck B... "L" in motor switch on, "H" in motor switch off.
10	AI0	Input	Reading of input switch state deck A, deck B PLAY (S905, S901)	• DO0 output (Scan A) signal→"L" Deck A... "L" in PLAY switch on, "H" in PLAY switch off. • DO1 output (Scan B) signal→"L" Deck B... "L" in PLAY switch on, "H" in PLAY switch off.
11	BI3	Input	Reading of input switch state editing (S1)	• "L" when editing switch is on mode. • "H" when editing switch is off mode.
12	BI2	Input	Reading of input switch state Tape speed selector (S2)	• "L" when tape speed selector is on mode. • "H" when tape speed selector is off mode.

Terminal No.	Symbol	In/Out	Name	Function/operation
13	BI1	Input	Reading of input switch state deck A auto tape selector (S908)	• "L" when auto tape selector is on mode. • "H" when auto tape selector is off mode.
14	BI0	Input	Reading of input switch state deck A REC (S907)	• "H" when REC switch is on mode. • "L" when REC switch is off mode.
15	EO0	Output	Mode selector deck A	• "L" in PLAY mode, "H" in other mode.
16	EO1	Output	Playback equalizer (120μs/70μs) selector	• "L" in 120μs mode, "H" in 70μs mode.
17	EO2	Output	Tape speed (X1/X2) selector	• "L" in normal speed (X1), "H" in high speed (X2).
18	EO3	Output	Dolby IC mode selector (REC/PLAY)	• "L" in REC mode, "H" in PLAY mode.
19	RST	Input	Reset terminal	• Used to reset the microcomputer when power is thrown in. • Reset at "L".
20	TST	—	—	• Connection to GND.
21	DO3	Output	Motor selector deck B	• "H" in motor deck B off, "L" in motor deck B on.
22	DO2	Output	Motor selector deck A	• "H" in motor deck A off, "L" in motor deck A on.
23	DO1	Output	Scan B	• Scan signal for reading of PLAY switch input.
24	DO0	Output	Scan A	• Scan signal for reading of PLAY switch input.
25	SNS0	—	—	• Not used in this unit.
26	SNS1	—	—	• Non connection.
27	V <sub>DD</sub>	—	Power supply terminal	• Operative on 5±0.5 volts.
28	OSC	Input	Clock Oscillation	• Clock oscillation of about 300kHz.

## ■ WIRING CONNECTION DIAGRAM

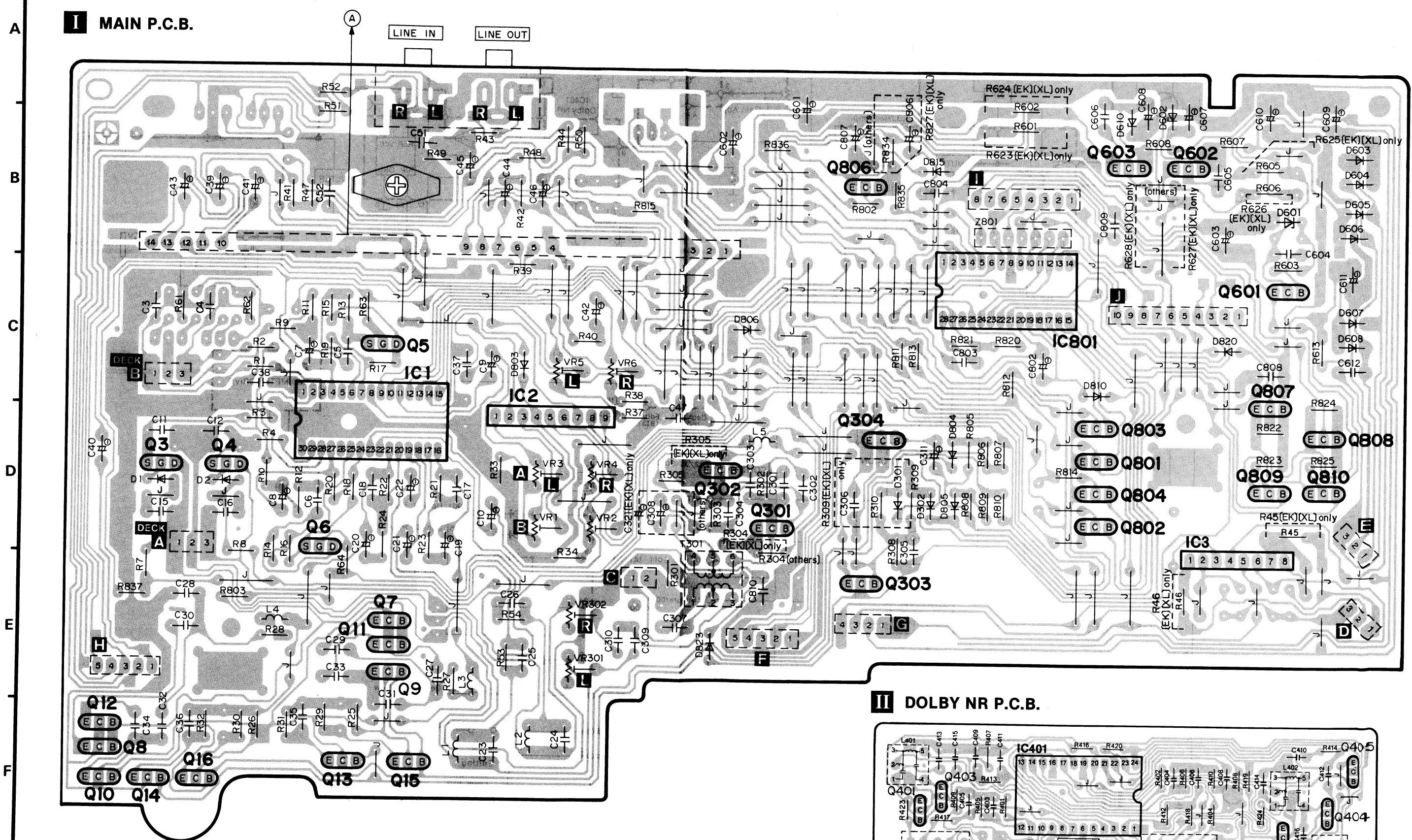


## ■ BLOCK DIAGRAM

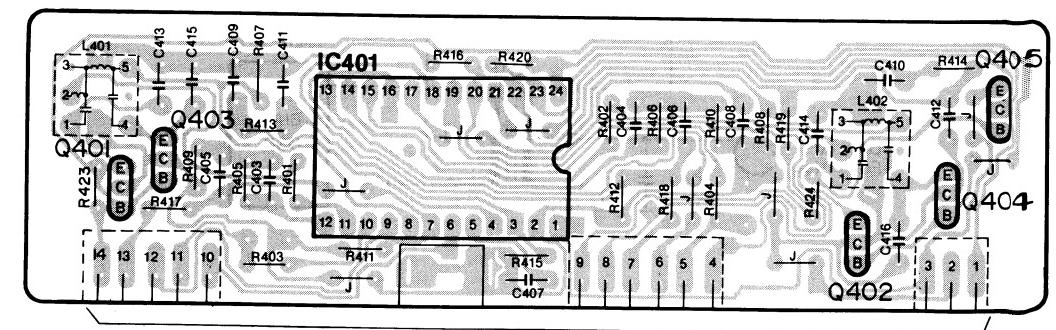


## ■ PRINTED CIRCUIT BOARDS

I MAIN P.C.B.

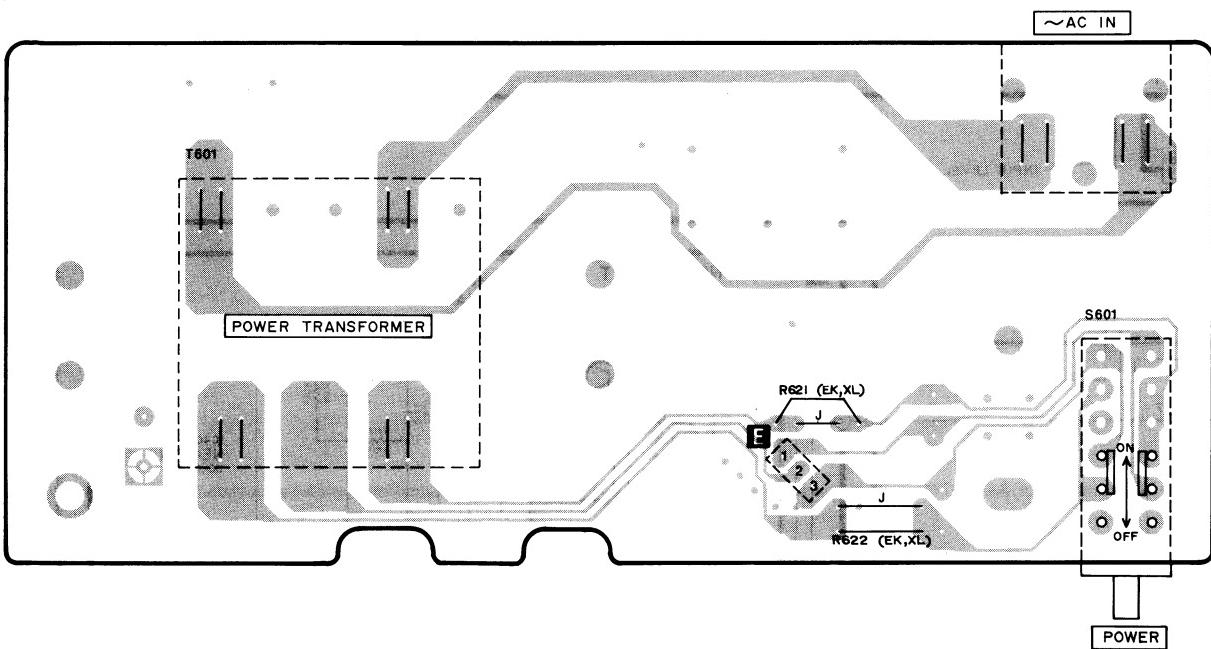


**DOLBY NR P.C.B.**

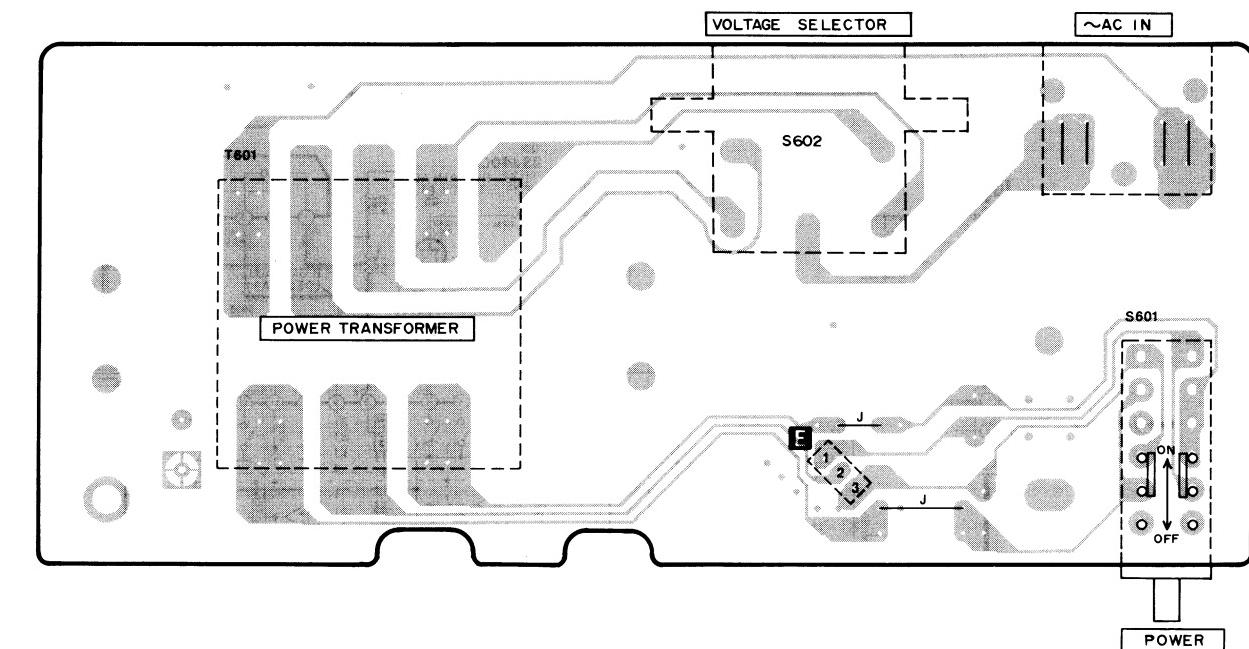


11 12 13 14 15 16 17 18 19 20

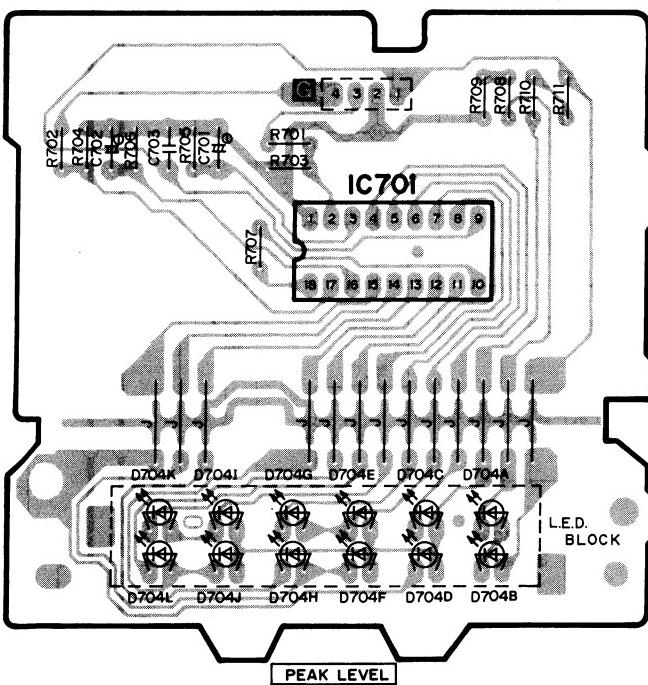
### III POWER SUPPLY P.C.B. (Except XA)



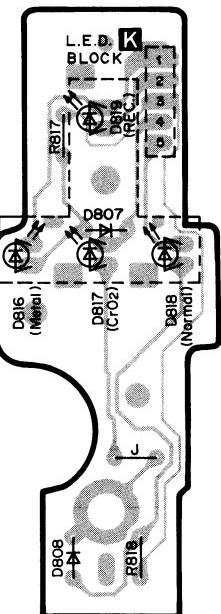
### III POWER SUPPLY P.C.B. (XA)



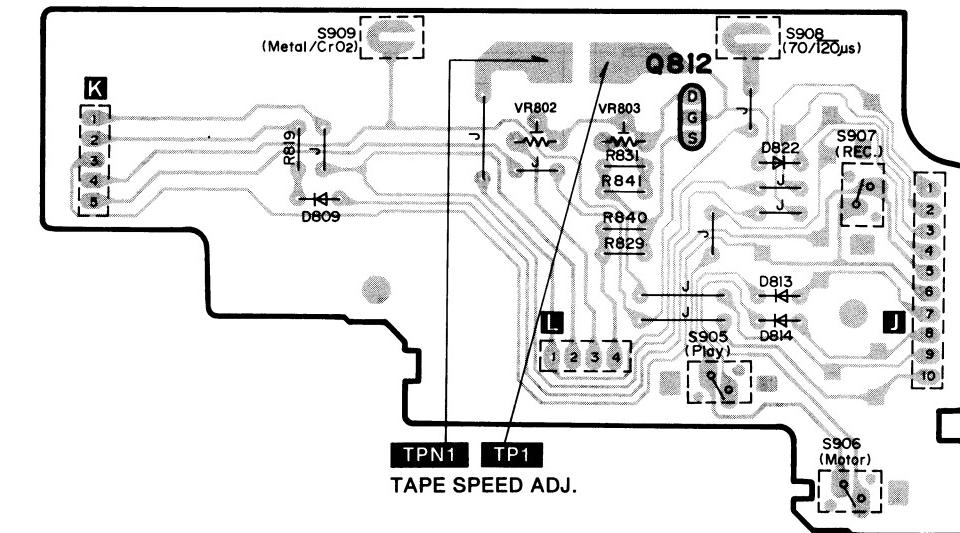
### V LED METER P.C.B.



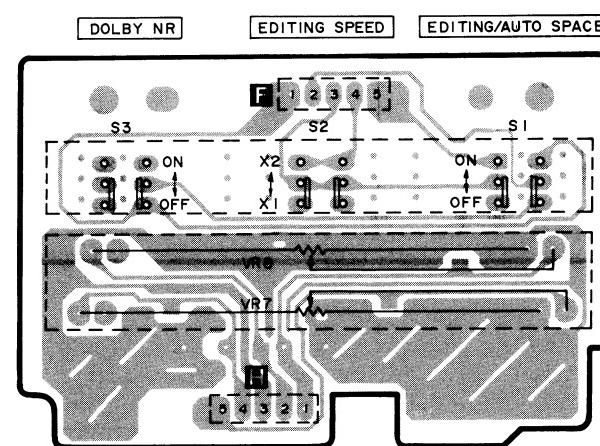
### VI LED P.C.B.



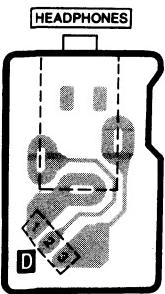
### VII MECHANISM P.C.B. (DECK A)



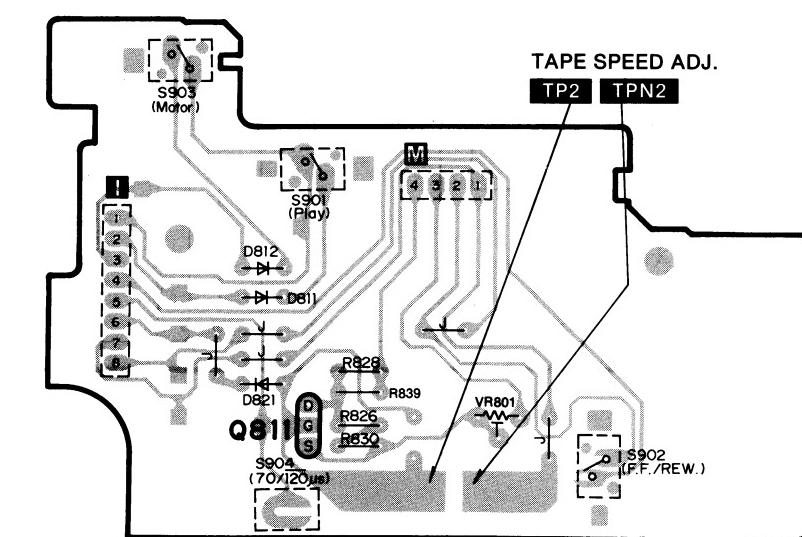
### IV VR/SW P.C.B.

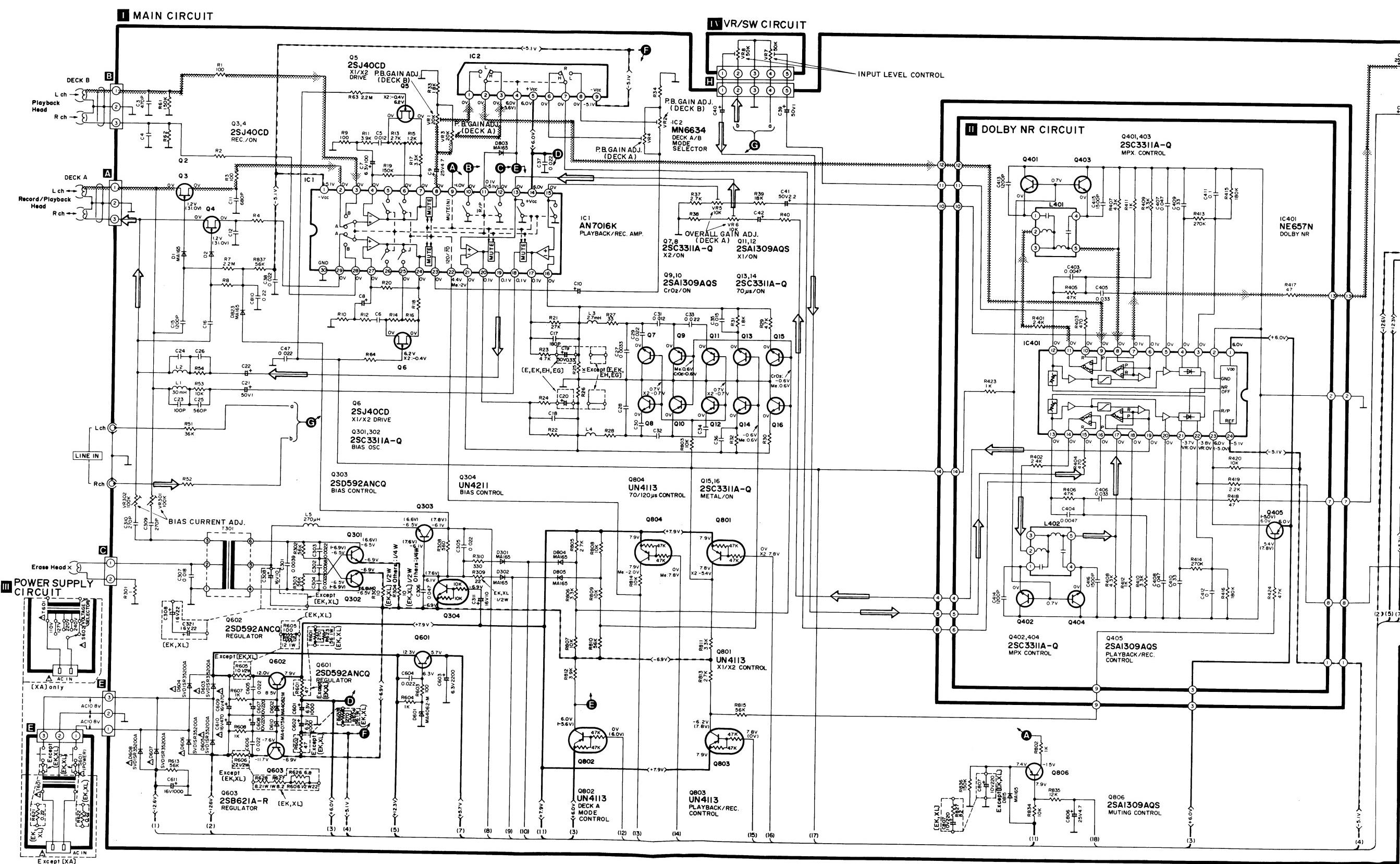


### IX HEADPHONES P.C.B.



### VIII MECHANISM P.C.B. (DECK B)





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## ■ SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with the development of new technology.)

### Notes:

- S1 : Editing/Auto space switch in "off" position.
- S2 : Editing speed selector in "X1" position.
- S3 : Dolby NR switch in "off" position.
- S601 : Power switch in "on" position.
- S602 : Voltage selector in "240V" position. (XA only)
- S901 : DECK B Play switch in "off" position.
- S902 : DECK B FF/REW switch in "off" position.
- S903 : DECK B Motor switch in "off" position.
- S904 : DECK A ATS (70/120μ) switch in "off" position.
- S905 : DECK A Play switch in "off" position.
- S906 : DECK A Motor switch in "off" position.
- S907 : DECK A Rec. switch in "off" position.
- S908 : DECK A ATS (70/120μ) switch in "off" position.
- S909 : DECK A ATS (Metal/CrO<sub>2</sub>) switch in "off" position.
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise. 1K = 1,000 (Ω), 1M = 1,000K (Ω)
- Capacity are in micro-farads (μF) unless specified otherwise.
- All voltage values shown in circuitry are under no signal condition and playback mode with volume control at minimum position otherwise specified.
- ( ) ..... Voltage values at record mode.

For measurement us EVM.

### Important safety notice

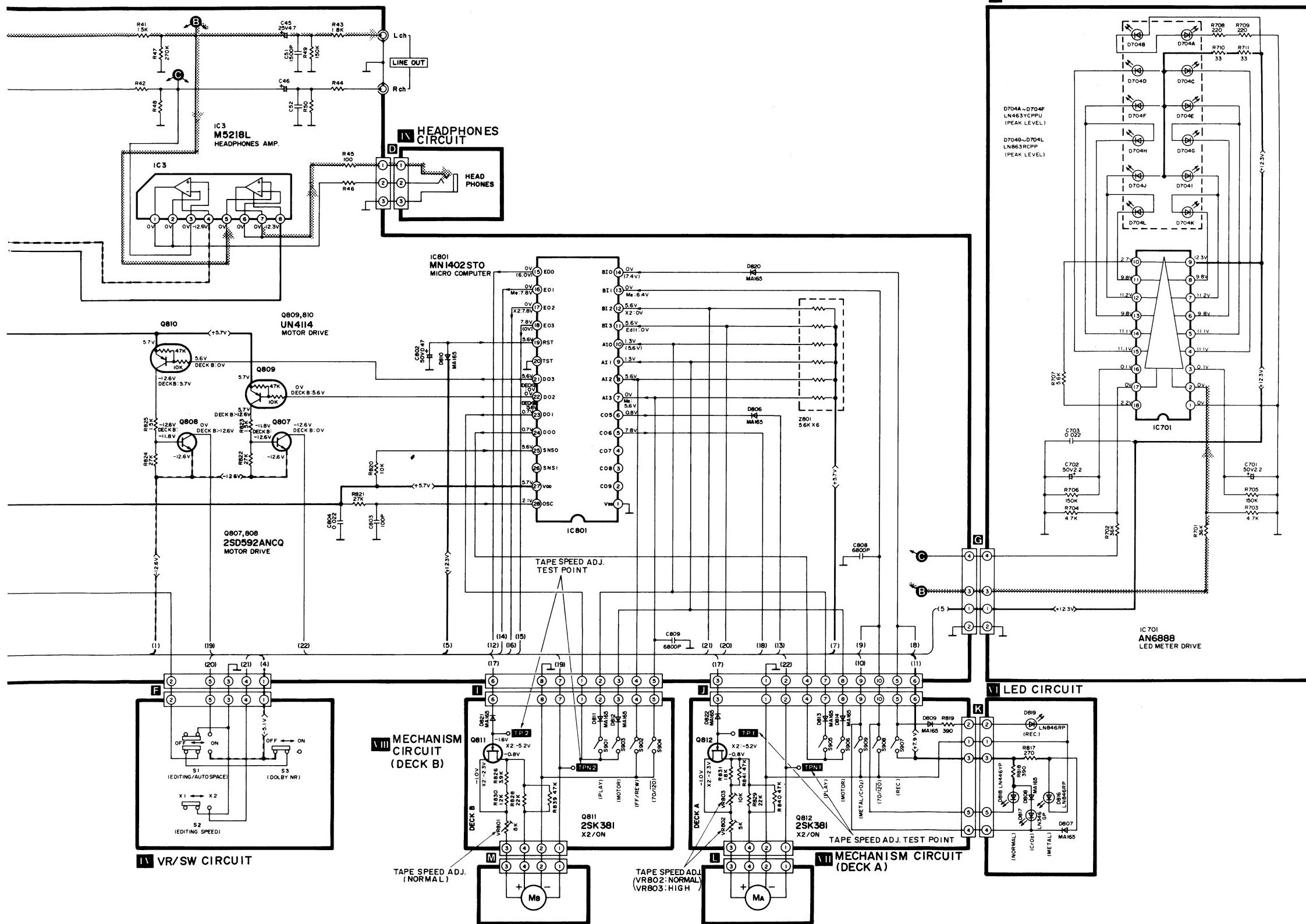
Components identified by △ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

- (—> +B) indicates +B (bias).
- (—> -B) indicates -B (bias).
- (—>) indicates the flow of the playback signal.
- (—>) indicates the flow of the record signal.

### \* Caution !

IC and LSI are sensitive to static electricity. Secondary trouble can be prevented by taking care during repair.

- \* Cover the parts boxes made of plastics with aluminum foil.
- \* Ground the soldering iron.
- \* Put a conductive mat on the work table.
- \* Do not touch the legs of IC or LSI with the fingers directly.



## ■ RESISTORS & CAPACITORS

Notes : \* Important safety notice :

Components identified by  $\triangle$  mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.  
 \* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)  
 Parts without these indications can be used for all areas.

### Numbering System of Resistor

Example:				
ERD	25	F	J	102
Type	Wattage	Shape	Tolerance	Value
(1/4W)			(1KΩ)	
ERX	2	AN	J	471
Type	Wattage	Shape	Tolerance	Value
(2W)				(470Ω)

Resistor Type	Wattage	Tolerance
ERD : Carbon	10 : 1/8W	J : $\pm 5\%$
ERG : Metal Oxide	14 : 1/4W	F : $\pm 1\%$
ERQ : Fuse Type Metal	1A : 1W	G : $\pm 2\%$
ERX : Metal Film	S2 : 1/4W	J : $\pm 5\%$
ERD L : Carbon (chip)	S1 : 1/2W	K : $\pm 10\%$
ERO K : Metal Film (chip)	2F : 1/4W	M : $\pm 20\%$
ERC : Solid	2A : 2W	
ERF : Incombustible Box-Shaped	3A : 3W	
ERM : Wire-Wound	6G : 1/10W	
RRJ : Clip Resistor	8G : 1/8W	
ERJ : Clip Resistor		

### Numbering System of Capacitor

Example:				
ECKD	1H	102	Z	F
Type	Voltage	Value	Tolerance	Peculiarity
(50V)		(0.001μF)		
ECEA	50	M	330	
Type	Voltage	Peculiarity	Value	(33μF)
(50V)				

● Capacity are in microfarads ( $\mu F$ ) unless specified otherwise, P=Picofarads ( $pF$ ) F=Farads (F).

● Resistance are in ohms ( $\Omega$ ), unless specified otherwise, 1K=1,000Ω, 1M=1,000kΩ

Capacitor Type	Voltage	Tolerance
ECE : Electrolytic	0J : 6.3V	K : $\pm 10\%$
ECCD : Ceramic	1C : 16V	M : $\pm 20\%$
ECKD : Ceramic Capacitor	1H : 50V	Z : $\pm 80\%$
ECQM : Polyester	50 : 50V	-20 %
ECQP : Polypropylene	2H : 500V	J : $\pm 5\%$
ECG : Ceramic	1 : 100V	G : $\pm 2\%$
ECEA N : Non Polar Electrolytic	KC : 400V AC	F : $\pm 1\%$
QC1 : Ceramic (Chip Type)	KC : 125V AC	C : $\pm 0.25pF$
ECUX : Ceramic (Chip Type)	(UL)	D : $\pm 0.5pF$
ECF : Semiconductor		
EECW : Liquid electrolyte double layer capacitor		

Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.
<b>RESISTORS(VALUE,WATTAGE)</b>								
R1	ERDS2TJ101	100 1/4	R45	ERDS2TJ101	100 1/4	R406	ERDS2TJ473	47K 1/4
R2	ERDS2TJ101	100 1/4	R45	ERD25FJ101	100 1/4	R407	ERDS2TJ432	4.3K 1/4
R3	ERDS2TJ101	100 1/4	(E, XL)			R408	ERDS2TJ432	4.3K 1/4
R4	ERDS2TJ101	100 1/4	R46	ERDS2TJ101	100 1/4	R409	ERDS2TJ332	3.3K 1/4
R7	ERDS2TJ225	2.2M 1/4	(E, EG, EH, XA)			R410	ERDS2TJ332	3.3K 1/4
R8	ERDS2TJ225	2.2M 1/4	R46	ERD25FJ101	100 1/4	R411	ERDS2TJ102	1K 1/4
R9	ERDS2TJ101	100 1/4	(E, XL)			R412	ERDS2TJ102	1K 1/4
R10	ERDS2TJ101	100 1/4	R47	ERDS2TJ274	270K 1/4	R413	ERDS2TJ274	270K 1/4
R11	ERDS2TJ392	3.9K 1/4	R48	ERDS2TJ274	270K 1/4	R414	ERDS2TJ274	270K 1/4
R12	ERDS2TJ392	3.9K 1/4	R49	ERDS2TJ154	150K 1/4	R415	ERDS2TJ184	180K 1/4
R13	ERDS2TJ272	2.7K 1/4	R50	ERDS2TJ154	150K 1/4	R416	ERDS2TJ184	180K 1/4
R14	ERDS2TJ272	2.7K 1/4	R51	ERDS2TJ363	36K 1/4	R417	ERDS2TJ470	47 1/4
R15	ERDS2TJ122	1.2K 1/4	R52	ERDS2TJ363	36K 1/4	R418	ERDS2TJ470	47 1/4
R16	ERDS2TJ122	1.2K 1/4	R53	ERDS2TJ103	10K 1/4	R419	ERDS2TJ222	2.2K 1/4
R17	ERDS2TJ392	3.3K 1/4	R54	ERDS2TJ103	10K 1/4	R420	ERDS2TJ103	10K 1/4
R18	ERDS2TJ392	3.3K 1/4	R61	ERDS2TJ154	150K 1/4	R423	ERDS2TJ102	1K 1/4
R19	ERDS2TJ154	150K 1/4	R62	ERDS2TJ154	150K 1/4	R424	ERDS2TJ473	47K 1/4
R20	ERDS2TJ154	150K 1/4	R63	ERDS2TJ225	2.2M 1/4	R601	ERDS2TJ271	270 1/4
R21	ERDS2TJ273	27K 1/4	R64	ERDS2TJ225	2.2M 1/4	(E, XL)		
R22	ERDS2TJ273	27K 1/4	R301	ERDS2TJ1R0	1 1/4	R601	ERDS2TJ470	47 1/4
R23	ERDS2TJ472	4.7K 1/4	R302	ERDS2TJ563	56K 1/4	R407	ERDS2TJ432	4.3K 1/4
R24	ERDS2TJ472	4.7K 1/4	R303	ERDS2TJ563	56K 1/4	R408	ERDS2TJ432	4.3K 1/4
R25	ERDS2TJ102	1K 1/4	R304	ERDS1FJ100	10 1/2	R602	ERDS2TJ470	47 1/4
R26	ERDS2TJ102	1K 1/4	(E, XL)			(E, EG, EH, XA)		
R27	ERDS2TJ330	33 1/4	R304	ERDS2TJ100	10 1/4	R603	ERDS2TJ101	100 1/4
R28	ERDS2TJ330	33 1/4	(E, EG, EH, XA)			R604	ERDS2TJ102	1K 1/4
R29	ERDS2TJ472	4.7K 1/4	R305	ERDS1FJ100	10 1/2	R605	ERDS1FJ100	10 1/2
R30	ERDS2TJ472	4.7K 1/4	(E, XL)			(E, EG, EH, XA)		
R31	ERDS2TJ182	1.8K 1/4	R305	ERDS2TJ100	10 1/4	R605	ERDS2TJ101	100 1/4
R32	ERDS2TJ182	1.8K 1/4	(E, EG, EH, XA)			(E, XL)		
R33	ERDS2TJ182	1.8K 1/4	R308	ERDS2TJ561	560 1/4	R606	ERDS1FJ220	22 1/2
R34	ERDS2TJ182	1.8K 1/4	R309	ERDS1FJ220	22 1/2	(E, EG, EH, XA)		
R37	ERDS2TJ272	2.7K 1/4	(E, XL)			R606	ERDS2TJ220	22 1/4
R38	ERDS2TJ272	2.7K 1/4	R309	ERDS2TJ220	22 1/4	(E, XL)		
R39	ERDS2TJ183	18K 1/4	(E, EG, EH, XA)			R607	ERDS2TJ102	1K 1/4
R40	ERDS2TJ183	18K 1/4	R310	ERDS2TJ331	330 1/4	R608	ERDS2TJ102	1K 1/4
R41	ERDS2TJ152	1.5K 1/4	R401	ERDS2TJ242	2.4K 1/4	R613	ERDS2TJ563	56K 1/4
R42	ERDS2TJ152	1.5K 1/4	R402	ERDS2TJ242	2.4K 1/4	R621	ERQ14LKR22E	0.22 1/4
R43	ERDS2TJ182	1.8K 1/4	R403	ERDS2TJ471	470 1/4	R622	ERQ14LKR22E	0.22 1/4
R44	ERDS2TJ182	1.8K 1/4	R404	ERDS2TJ471	470 1/4	(E, XL)		
		R405	ERDS2TJ473	47K 1/4	(E, XL)			

Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.
R623	ERG1ANJ560S	56 1	R636	ERDS2TJ154	150K 1/4	C47	ECKD1H223PF	0.022 50
(E, XL)</								

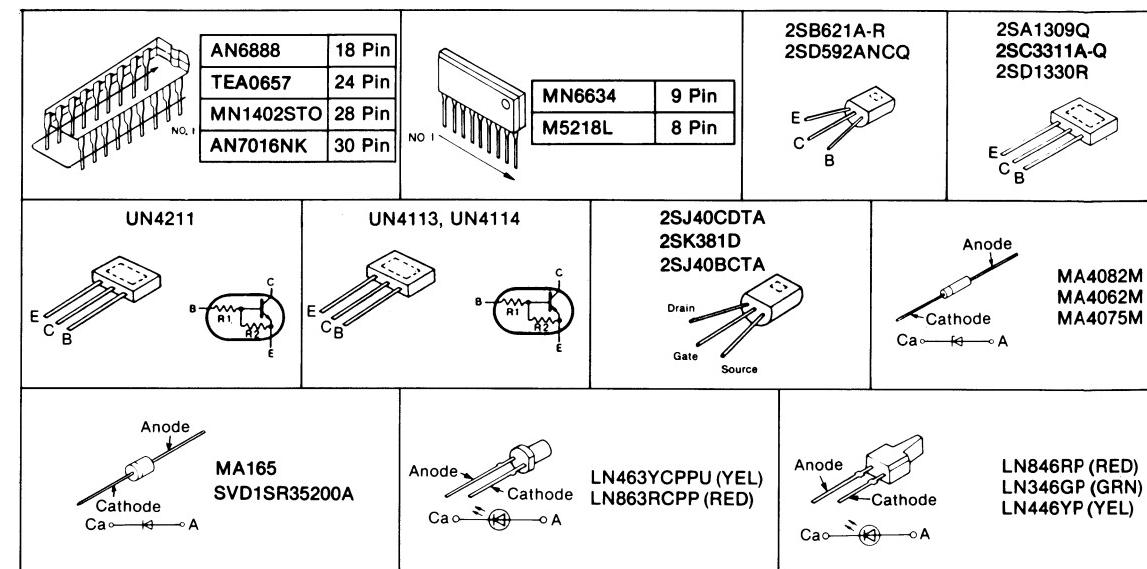
## ■ REPLACEMENT PARTS LIST

**Notes : \* Important safety notice :**

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Ref. No.	Part No.	Description	Ref. No.	Part No.	Description			
<b>INTEGRATED CIRCUITS</b>								
I1	AN7016NK	I.C. PLAY/REC AMP	D704K	LN863RCPP	L.E.D			
I2	MN6634	I.C. DECK A/B SELECTOR	D704L	LN863RCPP	L.E.D			
I3	MS218L	I.C. HEADPHONES AMP	D803	MA165	DIODE			
I401	TEA0657	I.C. DOLBY NR	D804	MA165	DIODE			
I701	AN6888	I.C. LED METER DRIVE	D805	MA165	DIODE			
I801	MN1402ST0	I.C. MICRO COMPUTER	D806	MA165	DIODE			
			D807	MA165	DIODE			
			D808	MA165	DIODE			
<b>TRANSISTORS</b>								
Q3	2SJ40BCTA	TRANSISTOR	D809	MA165	DIODE			
Q4	2SJ40BCTA	TRANSISTOR	D810	MA165	DIODE			
Q5	2SJ40CDTA	TRANSISTOR	D811	MA165	DIODE			
Q6	2SJ40CDTA	TRANSISTOR	D812	MA165	DIODE			
Q7	2SC3311A-Q	TRANSISTOR	D813	MA165	DIODE			
Q8	2SC3311A-Q	TRANSISTOR	D814	MA165	DIODE			
Q9	2SA1309Q	TRANSISTOR	D815	MA165	DIODE			
Q10	2SA1309Q	TRANSISTOR	D816	LN846RP	L.E.D			
Q11	2SA1309Q	TRANSISTOR	D817	LN346GP	L.E.D			
Q12	2SA1309Q	TRANSISTOR	D818	LN446YP	L.E.D			
Q13	2SC3311A-Q	TRANSISTOR	D819	LN846RP	L.E.D			
Q14	2SC3311A-Q	TRANSISTOR	D820	MA165	DIODE			
Q15	2SC3311A-Q	TRANSISTOR	D821	MA165	DIODE			
Q16	2SC3311A-Q	TRANSISTOR	D822	MA165	DIODE			
Q301	2SC3311A-Q	TRANSISTOR	D823	MA165	DIODE			
Q302	2SC3311A-Q	TRANSISTOR	<b>VARIABLE RESISTORS</b>					
Q303	2SD592ANCQ	TRANSISTOR	VR1	EVND4AA00B24	V.R. PB GAIN (DECK B)			
Q304	UN4211	TRANSISTOR	VR2	EVND4AA00B24	V.R. PB GAIN (DECK B)			
Q401	2SC3311A-Q	TRANSISTOR	VR3	EVND4AA00B24	V.R. PB GAIN (DECK A)			
Q402	2SC3311A-Q	TRANSISTOR	VR4	EVND4AA00B24	V.R. PB GAIN (DECK A)			
Q403	2SC3311A-Q	TRANSISTOR	VR5	EVND4AA00B14	V.R. OVERALL (DECK A)			
Q404	2SC3311A-Q	TRANSISTOR	VR6	EVND4AA00B14	V.R. OVERALL (DECK A)			
Q405	2SA1309Q	TRANSISTOR	VR7	EWAPB1X05A54	V.R. INPUT LEVEL CONTROL			
Q601	2SD592ANCQ	TRANSISTOR	VR8	EWAPB1X05A54	V.R. INPUT LEVEL CONTROL			
Q602	2SD592ANCQ	TRANSISTOR	VR301	EVND4AA00B15	V.R. BIAS CURRENT (A)			
Q603	2SB621A-R	TRANSISTOR	VR302	EVND4AA00B15	V.R. BIAS CURRENT (A)			
Q801	UN4113	TRANSISTOR	VR801	EVN49C00YB53	V.R. TAPE SPEED (DECK B)			
Q802	UN4113	TRANSISTOR	VR802	EVN49C00YB53	V.R. TAPE SPEED (DECK A)			
Q803	UN4113	TRANSISTOR	VR803	EVN49C00YB14	V.R. TAPE SPEED (DECK A)			
Q804	UN4113	TRANSISTOR	<b>COILS AND TRANSFORMERS</b>					
Q806	2SA1309Q	TRANSISTOR	L1	SLQX303-1KT	CHOKE COIL			
Q807	2SD592ANCQ	TRANSISTOR	L2	SLQX303-1KT	CHOKE COIL			
Q808	2SD592ANCQ	TRANSISTOR	L3	SLQX272-1YT	CHOKE COIL			
Q809	UN4114	TRANSISTOR	L4	SLQX272-1YT	CHOKE COIL			
Q810	UN4114	TRANSISTOR	L5	ELEPK271KA	COIL FILTER			
Q811	2SK381	TRANSISTOR	L401	QLB40048	M.P.X. COIL			
Q812	2SK381	TRANSISTOR	L402	QLB40048	M.P.X. COIL			
<b>DIODES</b>								
D1	MA165	DIODE	T301	SL09C19-K	OSCILLATOR COIL			
D2	MA165	DIODE	T601	△ SLT5K232SA	POWER TRANSFORMER			
D301	MA165	DIODE	(E, EG, EH)					
D302	MA165	DIODE	T601	△ SLT5K233SA	POWER TRANSFORMER			
D601	MA4062M	DIODE	(XA)					
D602	MA4082M	DIODE	T601	△ SLT5K234SA	POWER TRANSFORMER			
(E, XL)			(EK, XL)					
D603	△ SVD1SR35200A	RECTIFIER	<b>COMPONENT COMBINATIONS</b>					
D604	△ SVD1SR35200A	RECTIFIER	Z801	EXBF7E562J	COMPONENT COMBINATION			
D605	△ SVD1SR35200A	RECTIFIER	<b>SWITCHES</b>					
D606	△ SVD1SR35200A	RECTIFIER	S1	SSH3712	PUSH SWITCH, EDITING/AUTO SPACE			
D607	△ SVD1SR35200A	RECTIFIER	S2	SSH3712	PUSH SWITCH, EDITING SPEED			
D608	△ SVD1SR35200A	RECTIFIER	S3	SSH3712	PUSH SWITCH, DOLBY NR			
D610	MA4075M	DIODE	S601	△ SSH1226	SW, POWER			
D704A	LN463YCPPU	L.E.D	S602	△ SSR187-1	SW, VOLTAGE SELECTOR			
D704B	LN463YCPPU	L.E.D	(XA)					
D704C	LN463YCPPU	L.E.D	S901	SSP83	SW, PLAY (DECK B)			
D704D	LN463YCPPU	L.E.D	S902	SSP83	SW, FF/REW (DECK B)			
D704E	LN463YCPPU	L.E.D	S903	SSP83	SW, MOTOR (DECK B)			
D704F	LN463YCPPU	L.E.D	S904	LSA-1150AU	LEAF SWITCH, 70/120 (DECK B)			
D704G	LN863RCPP	L.E.D	S905	SSP83	SW, PLAY (DECK A)			
D704H	LN863RCPP	L.E.D	S906	SSP83	SW, MOTOR (DECK A)			
D704I	LN863RCPP	L.E.D	S907	SSP83	SW, REC (DECK A)			
D704J	LN863RCPP	L.E.D	S908	LSA-1150AU	LEAF SWITCH, 70/120 (DECK A)			
			S909	LSA-1150AU	LEAF SWITCH, METAL/ (DECK A)			

## ■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES



## ■ MECHANICAL PARTS LOCATION

## **NOTES:**

- When changing mechanism parts, apply the specified grease to the areas marked "××" shown in the drawing "Mechanical Parts Location".

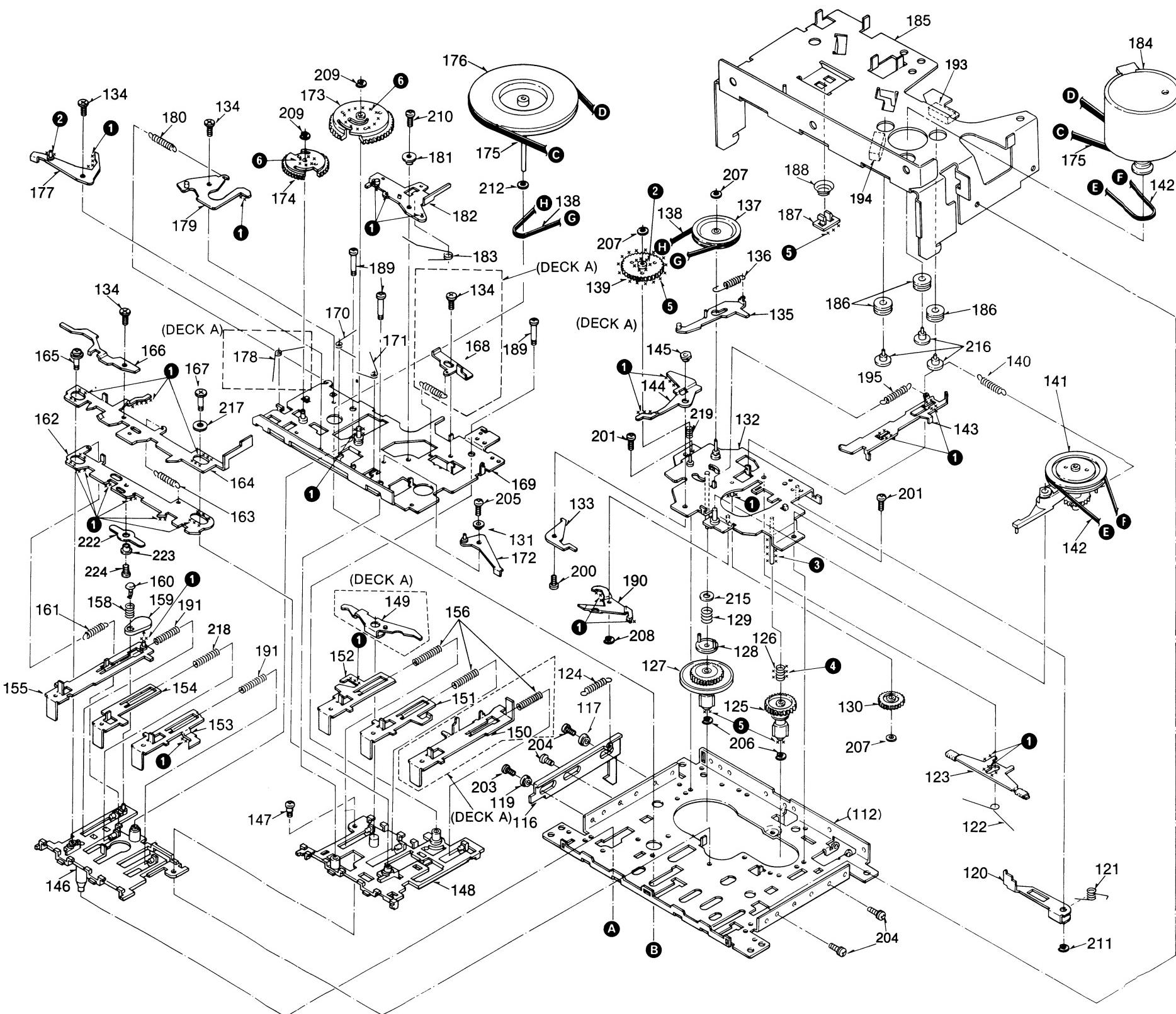
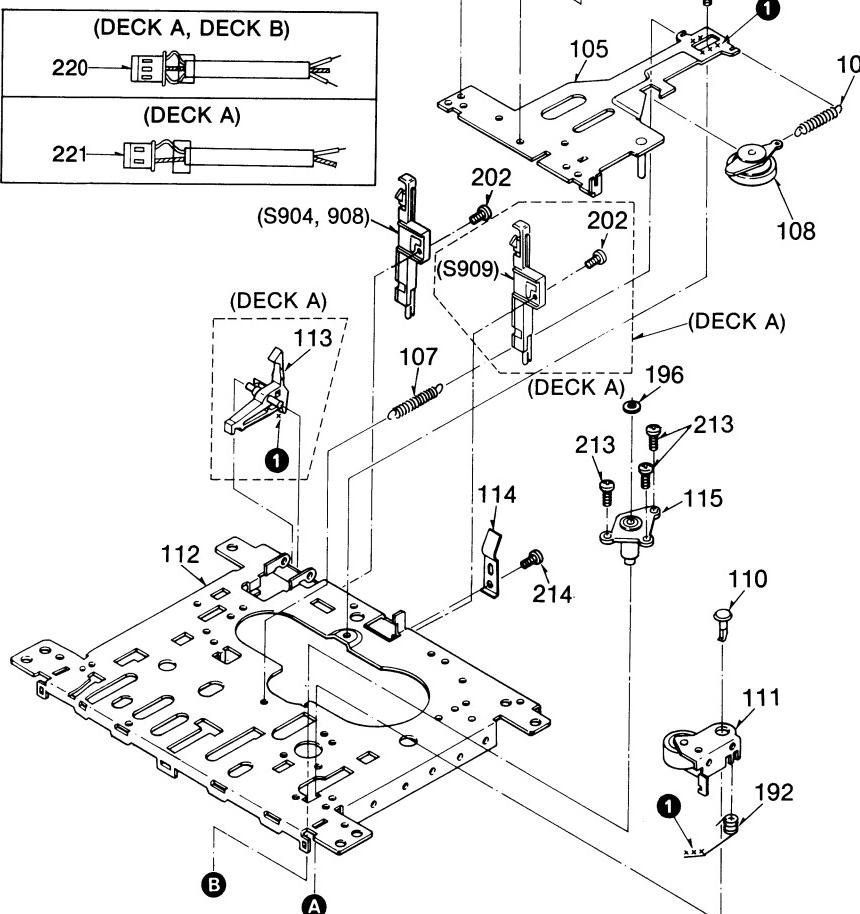
Ref. No.	Part Name	Part No.
①	ROCOL PASTE	RZZ0L06
⑦	FLOIL G-488M	SZZ0L28
③	FLOIL 947P	RZZ0L02
④	SILICONE OIL NO. 2	SZZ0L12
⑤	FLOIL G-488	SZZ0L10
⑥	FLOIL G-311S	SZZ0L26

## SPECIFICATIONS

**NOTE:** The value indicated by the torque tape may fluctuate during torque measurement.

In that case, obtain the middle of the values

<b>Takeup tension</b> * Use cassette torque meter ..... QZZSRKCT	$45 \pm 20$ g-cm
<b>Wow and flutter; (JIS)</b> * Use test tape ..... QZZCWAT	[XL] 0.1% (WRMS) [Others] 0.08% (WRMS)



## REPLACEMENT PARTS LIST

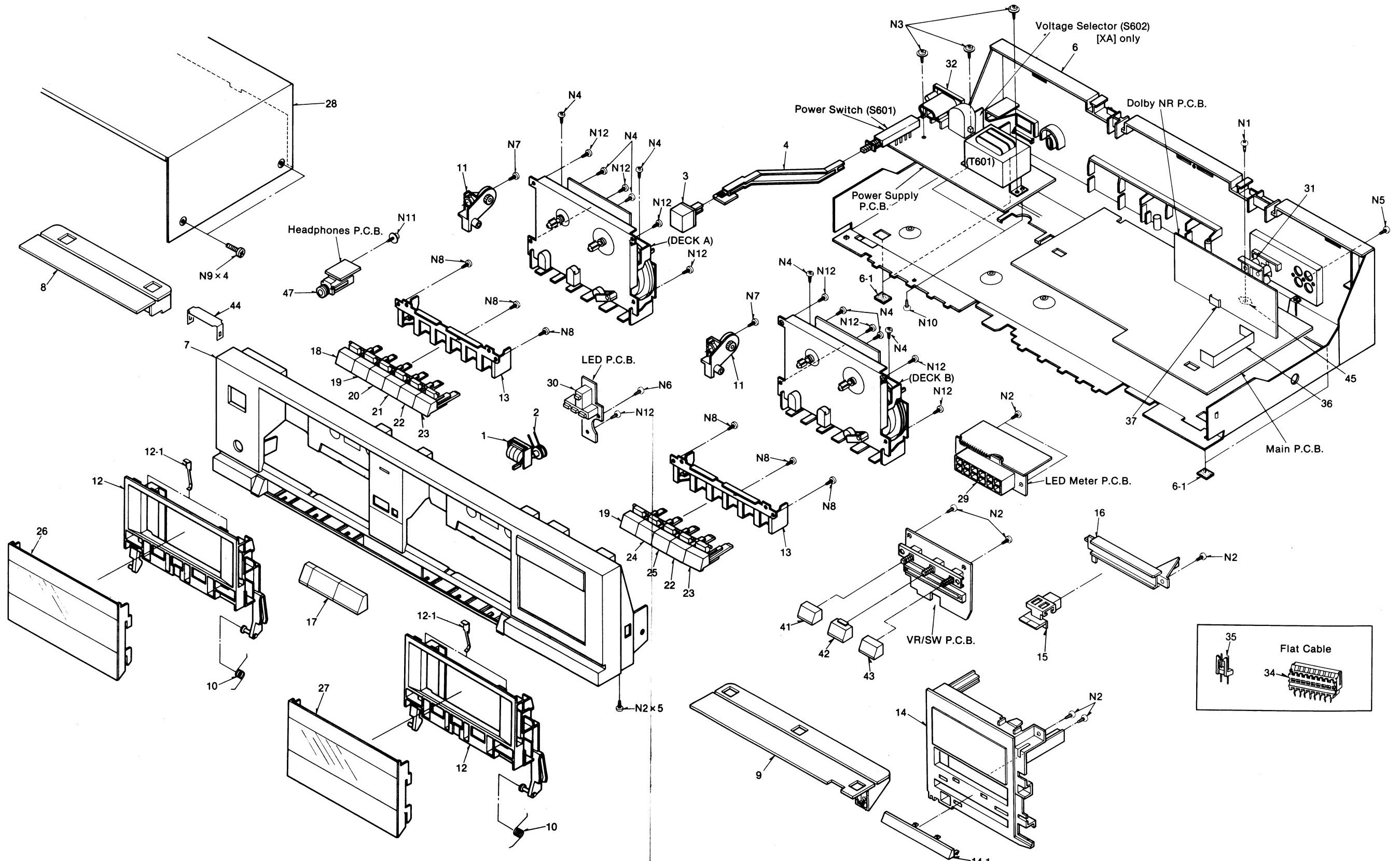
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description	
<b>CASSETTE DECK</b>						
101 (E, EK, EG, EH)	SJH103-1	PLAY HEAD (DECK B)	164	SMQT1589	LEVER	
101 (XA, XL)	SJH108	REC/PLAY HEAD (DECK A)	166	SMQ4872	EJECT KICK LEVER	
101 (XA, XL)	SJH109	PLAY HEAD (DECK B)	168	SMQ4880	FUNCTION LEVER ANGLE (DECK A)	
101 (E, EK, EG, EH)	RJH4C35GZAM	REC/PLAY HEAD (DECK A)	169	SMQT1590	SUB CHASSIS ASS'Y	
102	SMQ4596	SPRING	170	SMQ4888	M GEAR SPRING	
103	RJH7E5YAM	ERASE HEAD (DECK A)	171	SMQ4890	TRIGGER ARM SPRING	
103	SMQT1767	DAMYE HEAD (DECK B)	172	SMQ4892	TRIGGER ARM ASS'Y	
104	SMQ4768	HEAD BASE	173	SMQ4894	MAIN GEAR	
105	RFD135ZA	PANEL	174	SMQ4896	PAUSE GEAR	
107	SMQ4770	HEAD PANEL SPRING	175	SMQT1591	MAIN BELT	
108	SMQ4772	TAKE UP ROLLER ASS'Y	176	SMQT1765	MAIN BELT	
109	RFS249ZA	SPRING	177	SMQ4902	TRIGGER ARM ASS'Y	
110	SMQ4774	FUNCTION LEVER STOPPER	178	SMQ4904	TRIGGER ARM SPRING	
111	SMQ4776	PINCH ROLLER ASS'Y	179	SMQ4906	PAUSE ARM ASS'Y	
112	SMQT1458	CHASSIS	180	SMQ4909	PAUSE ARM SPRING	
113	SMQ4778	REC SAFETY LEVER (DECK A)	181	SMQ4910	LIFT ARM COLLAR	
114	SMQ4780	PACK HOLDER SPRING	182	SMQT1593	LIFT ARM ASS'Y	
115	SMQ4782	FLYWHEEL METAL	183	RFS248ZA	LIFT ARM SPRING	
116	RFY183ZA	LEVER	184	MMUST130-KE	MOTOR SAA, Y	
117	SMQ4786	COLLAR	185	SMQT1633	FM HOLD PLATE	
118	SMQT1629	SPRING	186	SMQT1717	FM HOLD PLATE	
119	SMQ4788	COLLAR	187	SMQ4916	MOTOR RUBBER	
120	SMQ4790	CONTROL LEVER	188	SMQT1595	FL PLATE	
121	RFS379Z	SPRING	189	SMQ4922	DAMPER SPRING	
122	SMQ4792	BRAKE SPRING	190	SMQ4940	KICK LEVER	
123	SMQ4794	BRAKE ARM ASS'Y	191	SMQ4958	BUTTON LEVER SPRING	
124	SMQT1630	EJECT LEVER SPRING	192	SMQT1453	SPRING	
125	SMQ4800	SUPPLY REEL ASS'Y	193	SMQT1598	FELT	
126	SMQT1636	SPRING	194	SMQT1636	SPRING	
127	SMQT1769	TAKE UP REEL ASS'Y	195	RFS372Z	RF SLIDE LEVER SPRING (DECK B)	
128	SMQ4806	SENSING PIECE	196	RFS378Z	RF SLIDE LEVER SPRING (DECK A)	
129	SMQ4808	SENSING PIECE SPRING	197	RFS378Z	RF SLIDE LEVER SPRING (DECK B)	
130	SMQ4810	FF GEAR	198	SMQT1768	BUTTON LEVER SPRING	
131	SMQ4816	COLLAR	199	SMQT1549	SPRING	
132	RFU16ZA	REEL BASE ASS'Y	200	SWKST130M1	READ WIRE ASS'Y (DECK B)	
133	SMQ4814	T. ROLLER KICK LEVER	201	SWKST130M2	READ WIRE ASS'Y (DECK A)	
135	SMQ4818	SENSING LEVER	202	SWKST130M3	READ WIRE ASS'Y (DECK A)	
136	SMQ4820	SENSING LEVER SPRING	203	RFY353Z	STOPER	
137	SMQ4822	PULLEY	204	RFZ85Z	COLLAR (DECK B)	
138	SMQ4824	FULL AUTO BELT	205	<b>SCREWS, WASHERS AND NUTS</b>		
139	SMQ4826	CAM GEAR	106	SMQT1581	COLLAR SCREW	
140	SMQT1631	RF CLUTCH ARM SPRING	134	SMQT1582	COLLAR SCREW	
141	SMQT1583	RF CLUTCH ARM ASS'Y	147	SMQ4838	COLLAR SCREW	
142	SMQT1584	RF BELT	165	SMQ4870	COLLAR SCREW	
143	SMQ4832	RF SLID LEVER ASS'Y	167	SMQ4978	COLLAR SCREW	
144	SMQ4834	AUTO LEVER	189	SMQ4942	COLLAR SCREW	
145	SMQ4938	AUTO LEVER COLLAR	196	SMQ4936	NYLON WASHER	
146	SMQ4836	BUTTON BASE(L)	197	XSN2+8	SCREW	
148	SMQ4840	BUTTON BASE(R)	198	SMQT1634	SCREW	
149	SMQ4842	REC STOPPER (DECK A)	199	XWG2	WASHER	
150	SMQT1586	REC BUTTON LEVER (DECK A)	200	SMQ4944	COLLAR SCREW	
151	SMQ4846	PLAY BUTTON LEVER	201	XYN2+C4	SCREW	
152	SMQ4848	RWD BUTTON LEVER	202	XYN2+C6	SCREW	
153	SMQ4850	FF BUTTON LEVER	203	XSN2+5	SCREW	
154	SMQ4852	STOP BUTTON LEVER	204	XYN2+C5	SCREW	
155	SMQ4854	PAUSE BUTTON LEVER	205	SMQT1460	SCREW	
156	SMQ4856	BUTTON LEVER SPRING				
158	SMQ4860	PAUSE LEVER SPRING				
159	SMQ2444	PAUSE LEVER				
160	SMQ4862	P STOPPER				
161	SMQT1588	SPRING				
162	SMQT1597	LEVER (DECK B)				
163	RFS253ZA	SPRING				

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
206	RFE133Z	RETAINING RING	213	SMQ4934	SCREW
207	SMQ4930	POLYSLIDE WASHER	214	XTN26+3	SCREW
208	XUC12FT	E-RING	215	SMQT1454	WASHER
209	XUC2FT	E-RING	216	SMQ4918	COLLAR SCREW
210	XYN2+C6	SCREW	217	RFN73Z	SPACER
211	XUC15FT	E-RING	224	XSS2+25	SCREW
212	SMQ4932	POLYSLIDER WASHER			(DECK B)

**Notes :** \* Important safety notice : Components identified by  $\Delta$  mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.  
 \* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)  
 Parts without these indications can be used for all areas.  
 \*  $\textcircled{K}$  mark parts are used for black type only.  
 \*  $\textcircled{S}$  mark parts are used for silver type only.  
 Parts other than  $\textcircled{K}$  and  $\textcircled{S}$  marked are used for all color types.

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
<b>CABINET AND CHASSIS</b>					
1	SJN20	TAPE COUNTER	23	$\textcircled{K}$ SBC871A	BUTTON, PAUSE
2	SMQ20018	COUNTER BELT	24	$\textcircled{S}$ SBC806A-1	BUTTON, PAUSE
3 $\textcircled{K}$	SBC666-5	BUTTON, POWER	24	$\textcircled{S}$ SBC868B	BUTTON, REW/REV
3 $\textcircled{S}$	SBC666	BUTTON, POWER	25	$\textcircled{K}$ SBC803B-1	BUTTON, FF/CUE
4	SUB255	ROD	25	$\textcircled{S}$ SBC804B-1	BUTTON, FF/CUE
6	SKMST130-KE	REAR PANEL ASS'Y	26	$\textcircled{K}$ SGE1919	CASSETTE LID(DECK A)
(E)	SKMST130-KEG	REAR PANEL ASS'Y	26	$\textcircled{S}$ SGE1919-2	CASSETTE LID(DECK B)
(EG, EH)	SKMST130-KEK	REAR PANEL ASS'Y	27	$\textcircled{K}$ SGE1919-1	CASSETTE LID(DECK B)
(EK)	SKMST130-KXA	REAR PANEL ASS'Y	28	$\textcircled{K}$ SKC2090K99	CABINET BODY
(XA)	SKMST130-KXL	REAR PANEL ASS'Y	29	$\textcircled{S}$ SKC2090S98	CABINET BODY
(XL)	SKL293	FOOT	30	LN121307P	LED BLOCK ASS'Y (D704A--D704L)
6-1	SGYST130-KE	FRONT PANEL ASS'Y	31	SJF3057N	TERMINAL BOARD
7 $\textcircled{K}$	SGYST130-SE	FRONT PANEL ASS'Y	32 $\Delta$	SJS9236	AC INLET
7 $\textcircled{S}$	SGTST130-SE	FRONT PANEL ASS'Y	34	SJT30543-V	CONNECTOR(5P)
8	SGX7894-1	SPACER	34	SJT30843-V	CONNECTOR(8P)
9	SGX7895-1	SPACER	34	SJT31043-V	CONNECTOR(10P)
10	SUS797	SPRING (CASSETTE HOLDER)	35	QJP1920TN-1	CONNECTOR(2P)
11	SGXST25-KP	DAMPER GEAR ASS'Y	35	QJP1921TN-1	CONNECTOR(3P)
12	SGXST17-KM	CASSETTE HOLDER ASS'Y	41 $\textcircled{K}$	SBC1014	BUTTON, EDITING/AUTO SPACE
12-1	QBP2006A	SPRING (CASSETTE HOLDER)	41 $\textcircled{S}$	SBC1014-3	BUTTON, EDITING SPEED
13	SMN2001-1	BRACKET	42 $\textcircled{K}$	SBC1014-1	BUTTON, EDITING SPEED
14 $\textcircled{K}$	SGXST18-KM	ORNAMENT ASS'Y	42 $\textcircled{S}$	SBC1014-4	BUTTON, EDITING SPEED
14 $\textcircled{S}$	SGXST130-SE	ORNAMENT ASS'Y	43 $\textcircled{K}$	SBC1014-2	BUTTON, DOLBY NR
14-1 $\textcircled{K}$	SGX9044	ORNAMENT	43 $\textcircled{S}$	SBC1014-5	BUTTON, DOLBY NR
14-1 $\textcircled{S}$	SGX9044-1	ORNAMENT	44	SUN31014	BRACKET
15 $\textcircled{K}$	SBD149	KNOB, VOLUME	45	SNE55	BRACKET
15 $\textcircled{S}$	SBD149-1	KNOB, VOLUME	47	QJA0455ZC	JACK, HEADPHONES
16 $\textcircled{K}$	SGX9047-2	SLIDE GUIDE	<b>SCREWS, WASHERS AND NUTS</b>		
16 $\textcircled{S}$	SGX9047-3	SLIDE GUIDE	N1	XTB3+8JFZ1	SCREW
17 $\textcircled{K}$	SGX7897	ORNAMENT	N2	XTB3+10J	SCREW
17 $\textcircled{S}$	SGX7897-1	ORNAMENT	N3	XTW3+12Q	SCREW
18 $\textcircled{K}$	SBC866A	BUTTON, REC	N4	XTB3+6F	

## **CABINET PARTS LOCATION**



8	12	12-1	7	10	17	18	19	20	21	22	23	12-1	12	11	11	13	2	10	19	24	25	22	3	23	11	9	13	4	6-1	14	14-1	15	6	16	6-1		
26		44		47	27	28											30				41	42	43		32	29				37	35	31	34	36	45		
	N9				N11	N8		N8	N7		N8	N4	N12	N12	N4	N2	N6	N12	N8		N7	N8	N4		N12	N8	N12	N12	N4	N3	N12	N10	N2	N2	N2	N1	N5

## Cassette Deck

## RS-T130

DEUTSCH

## MESSUNGEN UND EINSTELL METHODEN

**Meßinstrumente**

- Elektronisches Voltmeter (EVM)
- Oszilloskop
- Digitaler Frequenzmesser
- Audiofrequenz-Oszillatator
- Dämpfungswiderstand
- Gleichstrom-Voltmeter
- Widerstand (600Ω)

**Tonkopf-Azimuteinstellung**

1. Spielen Sie auf dem Testband (QZZCFM) den Teil für die Azimuteinstellung (8kHz, -20dB) ab. Drehen Sie die Azimuteinstellschraube so lange, bis die Abgaben des L-K und R-K den Höchstwert erreichen, und die Lissajosscghe wellenfigur sich, wie abgebildet, 0 Grad nähert.

**Anmerkung:**

When L-K und R-K nicht auf demselben Punkt ihren Höchstwert erreichen, stellen Sie beide Kanäle auf den jeweiligen Höchstwert und gleichen dann aus.

2. Nehmen Sie denselben Einstellvorgang in der Wiedergabestellung vor.

**Bandgeschwindigkeits-einstellung****Normale Geschwindigkeit**

1. Den Wahlschalter für Editier-Bandgeschwindigkeit auf "x 1" stellen.
2. Den mittleren Teil des Prüfbandes (QZZCWAT) wiedergeben.
3. Deck A = VR802 und Deck B = VR801 so einstellen, daß der Ausgang dem Sollwert entspricht.

**Hohe Geschwindigkeit**

4. Den Editier-Bandgeschwindigkeits-Wahlschalter auf "x 2" stellen und das Deck A = TP1 und TPN1, Deck B = TP2 und TPN2 anschließen.
5. Den mittleren Teil des Prüfbandes (QZZCWAT) wiedergeben.
6. Deck A = VR803 so einstellen, daß der Ausgang dem Sollwert entspricht.
7. Das Deck A = TP1 und TPN1, Deck B = TP2 und TPN2 öffnen.

**Wiedergabefrequenzaang**

1. Spielen Sie auf dem Testband (QZZCFM) den Teil für den Frequenzgang (315Hz, 12.5kHz~63Hz, -20dB) ab.
2. Achten Sie darauf, daß der Frequenzgang für beide Kanäle (L-K, R-K) in dem in Abb. 5 gezeigten Bereich liegt.

**Einstellung der Wiedergabeverstärkungsregelung**

1. Spielen Sie auf dem Testband (QZZCFM) den Teil für die Einstellung der Verstärkungsregelung (315Hz, 0dB) ab.
2. Stellen Sie VR1 (L-K) [[VR2 (R-K)]] für Deck B über VR3 (L-K) [[VR4 (R-K)]] für Deck A so ein, daß die Abgabe den Normwert erfüllt.

### Gesamtfrequenzgang

1. Legen Sie das normale Leertestband (QZZCRA) ein und stellen das Gerät auf Aufnahme-/Pause-Betrieb.
2. Geben Sie über einen Lautstärkeregler ein Bezugseingabesignal (1kHz, -20dB) ein.
3. Stellen Sie das Signal auf 20dB und justieren die Frequenz von 50Hz~10kHz.
4. Nehmen Sie das Wobbelsignal auf.
5. Geben Sie das aufgenommene Signal wieder und achten darauf, daß dieses sich im Vergleich zur Bazugsfrequenz (1kHz) in dem in **Abb. 8** aufgezeichneten Bereich befindet.
6. Sollte das Signal nicht im Normbereich liegen, justieren Sie **VR301** (L-K) und **VR302** (R-K) so, daß der Frequenzpegel mit der Norm übereinstimmt.
7. Wiederholen Sie die Schritte 2~6 und verwenden das CrO<sub>2</sub> Band (QZZCRX) und das Metallband (QZZCRZ). Der Frequenzbereich wird auf 12.5kHz (50Hz~12.5kHz) angehoben.
8. Achten Sie darauf, daß sich der Frequenzpegel in dem in **Abb. 9** aufgezeigten Bereich befindet.

### Einstellung der Gesamtverstärkungsregelung

1. Legen Sie das normale Leertestband (QZZCRA) ein und stellen das Gerät auf Aufnahme-/Betrieb.
2. Legen Sie ein Bezugseingabesignal (1kHz, -20dB) an. Stellen Sie das Ausgangssignal auf einen Pegel von 0.4V ein.
3. Nehmen Sie das Eingabesignal auf.
4. Geben Sie das in Schritt 3 oben aufgenommene Signal wieder und achten Sie darauf, daß das Ausgangssignal mit dem Normwert übereinstimmt.
5. Sollte der Wert nicht innerhalb der Norm liegen, justieren Sie **VR5** (L-K) und **VR6** (R-K).
6. Wiederholen Sie die Schritte 2~5 von oben so lange, bis das Ausgangssignal im Normbereich liegt.

## FRANÇAIS

### METHODES DES MEASURES ET REGLAGES

#### Appareils de mesurage

- Voltmètre électronique
- Oscilloscope
- Compteur de fréquence numérique
- Oscillateur de fréquence audio
- A.T.T. (Atténuateur)
- Voltmètre à C.C.
- Résistance (600Ω)

#### Reglage Azimutal de la tête

1. Faire jouer la portion du réglage de l'azimuth (8kHz, -20dB) de la bande d'essai (QZZCFM). Ajuster la vis de la mise au point azimutale jusqu'à ce que les sorties du canal de gauche et du canal de droite soient maximisées et que la forme d'onde de Lissajous, comme il est illustré, approche de 0 degré.

#### Nota:

Si le canal de gauche et canal de droite ne sont pas maximisés au même point, régler le point où les niveaux de chaque canal sont maximisés et égaux.

2. Effectuer le même réglage sur le mode d'audition.

#### Réglage de la vitesse de défilement Vitesse

##### normal

1. Placer le sélecteur de vitesse d'édition sur la position "x1".
2. Lire la partie centrale de la bande d'essai (QZZCWAT).
3. Régler VR802 pour la platine A et VR801 pour la platine B de manière que la sortie ait la valeur standard.

##### Grande vitesse

4. Placer le sélecteur de vitesse d'édition sur la position "x2" et relier TP1 de la platine A à TPN1 et TP2 de la platine B à TPN2.
5. Lire la partie centrale de la bande d'essai (QZZCWAT).
6. Régler VR803 pour la platine A de manière que la sortie ait la valeur standard.
7. Débrancher les liaisons entre TP1 de la platine A et TPN1 et entre TP2 de la platine B et TPN2.

#### Reponse en Fréquence de la Lecture

1. Faire jouer la partie de la réponse en fréquence (315Hz, 12.5kHz~63Hz, -20dB) de la bande d'essai (QZZCFM).
2. S'assurer que la réponse en fréquence soit en deçà de la plage montrée dans la Fig. 5, à la fois pour le canal de gauche et le canal de droite.

#### Reglage de L'amplification de Lecture

1. Faire jouer la partie réglée de l'amplification (315Hz, 0dB) de la bande d'essai (QZZCFM).
2. Régler la platine B: VR1 (canal de gauche) [[VR2 (canal de droite)]] et la platine A: VR3 (canal de gauche) [[VR4 (canal de droite)]] de telle sorte que la sortie soit en deçà de la valeur standard.

#### Reponse en Fréquence Totale

1. Introduire la bande d'essai vierge normale (QZZCRA) et régler l'appareil sur le mode d'intermission d'un disque.
2. Appliquer un signal d'entrée de référence (1kHz, -20dB) par l'intermédiaire d'un atténuateur.
3. Diminuer le signal de 20dB et régler la fréquence de 50Hz~10kHz.
4. Enregistrer le balayage de fréquence.
5. Faire jouer le signal enregistré et s'assurer qu'il soit en deçà de la plage montrée à la Fig. 8 en comparaison à la fréquence de référence (1kHz).
6. S'il n'est pas en deçà de la plage standard, régler VR301 (canal de gauche) et VR302 (canal de droite) de telle sorte que le niveau de fréquence soit en deçà de la plage standard.
7. Répéter les étapes 2~6 ci-dessus en utilisant la band CrO<sub>2</sub> (QZZCRX) et la bande métallisée (QZZCRX) en augmentant la plage de fréquence à 12.5kHz (50Hz~12.5kHz).
8. S'assurer que le niveau soit en deçà de la plage montrée à la Fig. 9.

#### Reglage de L'amplification Totale

1. Introduire la bande d'essai vierge normale (QZZCRA) et régler l'appareil sur le mode d'intermission d'un disque.
2. Appliquer un signal d'entrée de référence (1kHz, -20dB). Diminuer la sortie de telle sorte que son niveau devienne de 0.4V.
3. Enregistrer ce signal d'entrée.
4. Faire jouer le signal enregistré à l'étape 3 ci-dessus, et s'assurer que la sortie en deçà de la valeur standard.
5. Si elle n'est pas en deçà de la valeur standard, régler VR5 (canal de gauche) et VR6 (canal de droite).
6. Répéter les étapes 2~5 ci-dessus jusqu'à ce que la sortie soit en deçà de la valeur standard.

# ESPAÑOL

## METODOS DE AJUSTE Y MEDIDA

### Instrumento de medición

- EVM (Voltímetro electrónico)
- Osciloscopio
- Frecuencímetro digital
- Oscilador AF
- ATT (Atenuador)
- Voltímetro CC
- Resistor (600Ω)

### Ajuste Azimutal de Cabeza

1. Reproducir la porción de ajuste azimutal (8kHz, -20dB) de la cinta de prueba (QZZCFM). Variar el tornillo de ajuste azimutal hasta que las salidas del CH-1 y CH-D se maximicen y la forma de onda de lissajous, como ilustrado, se acerque a grado 0.
2. Efectuar el mismo ajuste en la modalidad de reproducción.

#### Nota:

Si CH-1 y CH-D no son maximizados en el mismo punto, ajustar al punto donde los niveles de cada canal sean maximizados e igualados.

### Ajuste de la Velocidad de la Cinta

#### Velocidad normal

1. Lleve a "x1" el selector de la velocidad de la cinta de edición.
2. Reproduzca la sección central de la cinta de prueba (QZZCWAT).
3. Ajuste la platina A = VR802 y la platina B = VR801 de modo que la salida quede comprendida dentro de los valores estándares.

#### Alta velocidad

4. Ponga el selector de la velocidad de la cinta editora en "x2" y realice la conexión siguiente: platina A = TP1 y TPN1, platina B = TP2 y TPN2.
5. Reproduzca la sección central de la cinta de prueba (QZZCWAT).
6. Ajuste la platina A = VR803 de modo que la salida quede comprendida dentro de los valores estándares.
7. Desconecte la platina A = TP1 y TPN1 y la platina B = TP2 y TPN2.

### Respuesta de Frecuencia de Reproducción

1. Reproducir la parte de respuesta de frecuencia de reproducción (315Hz, 12.5kHz~63Hz, -20dB) de la cinta de prueba (QZZCFM).
2. Asegurarse de que la respuesta de frecuencia esté dentro de la gama mostrada en la Fig. 5 para ambos CH-I y CH-D.

### Ajuste de Ganancia de Reproducción

1. Reproducir la porción ajustada de ganancia (315Hz, 0dB) de la cinta de prueba (QZZCFM).
2. Ajustar la Platina B: VR1 (CH-I) [[VR2 (CH-D)]] y la Platina A: VR3 (CH-1) [[VR4 (CH-D)]] de manera que la salida esté dentro del valor estándar.

### Respuesta de Frecuencia Total

1. Poner una cinta virgen normal (QZZCRA) y poner la unidad en la modalidad de Pausa de Grabación.
2. Aplicar la señal de entrada de referencia (1kHz, -20dB) a través de un atenuador.
3. Atenuar la señal por 20dB y ajustar la frecuencia de 50Hz~10kHz.
4. Grabar el barrido de frecuencia.
5. Reproducir la señal grabada y asegurarse de que esté dentro de la gama mostrada en la Fig. 8 en comparación con la frecuencia de referencia (1kHz).
6. Si no está dentro de la gama de frecuencia, ajustar VR301 (CH-I) y VR302 (CH-D) de manera que el nivel de frecuencia esté dentro de la gama estándar.
7. Repetir los pasos 2~6 de arriba utilizando la cinta CrO<sub>2</sub> (QZZCRX) y la cinta metálica (QZZCRZ) incrementando la gama de frecuencia a 12.5kHz (50Hz~12.5kHz).
8. Asegurarse de que el nivel esté dentro de la gama mostrada en la Fig. 9.

### Ajuste de Ganancia Total

1. Insertar la cinta de prueba en blanco normal (QZZCRA) y poner la unidad en modalidad de pausa de Grabación.
2. Aplicar la señal de entrada de referencia (1kHz, -20dB). Atenuar la salida de manera que su nivel sea 0.4V.
3. Grabar la señal de entrada.
4. Reproducir la señal grabada en el paso 3 de arriba y asegurarse de que la salida esté dentro del valor estándar.
5. Si no está dentro del valor estándar, ajustar VR5 (CH-I) y VR6 (CH-D).
6. Repetir el paso 2~5 de arriba hasta que la salida esté dentro del valor estándar.